

DC-40

Diagnostic Ultrasound System

Primary Care with Pure Crystal



Primary Care with Pure Crystal!

To deliver on the promise of quality health care within reach, Mindray always devote to contribute more for Primary Healthcare Service with creative action.

As an innovator, who keeps on providing the progressive solution to envision your improving mind, Mindray introduces the DC-40 Crystal to you with Pure Crystal Experience.



Why Single-Crystal is better

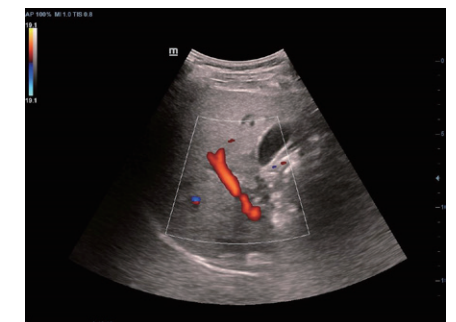
Based on the technical benefits of the material itself, the Single-Crystal solution provides a numbers of clinical advantages:

More clarity in far-field structure



ABD image in B mode

More organ details in 2D image when color mode is on



ABD image in B+Color mode

Easier and faster acquisition of images across all body types



Fetal Brain image of obese pregnant woman

Higher Imaging Definition

‘Keep on innovating’ is the motivation of Mindray, and powered by the Full HD display, classic imaging technologies, and optimized transducer family, DC-40 Crystal provides you outstanding imaging clarity for wider range of clinical diagnosis.

Classic imaging technologies: enhancing the quality for diagnosis

By the application of classic imaging technologies, which are migrated from established ultrasound systems, DC-40 Crystal provides you with the enhancement on the quality of image detail.

- **iClear** (speckle-reduction imaging technology)
- **PSH** (Phase Shift Harmonic imaging)
- **iBeam**: spatial-compounding imaging technology

ComboWave

ComboWave is a unique transducer technology for Linear. By the applying of a new type of composite piezoelectric material, DC-40 Crystal obtains better acoustic spectrum and lower acoustic impedance, and produces better performance of linear transducers.

Dual-Volume

Combining the convex volume, endocavity volume, and related application packages, DC-40 Crystal introduces the “Dual-Volume” solution, which provides dedicated 4D women care from the prenatal exams to the pregnancy check.



Dual-Volume

Urological solution

The specially-designed biplane transducers, including the linear/convex and dual micro-convex, support versatile urological solution for your mind-extension.



Urological solution

One-Key exam mode switch

The recent exam modes are listed on the right side of touchscreen. You can change the frequently-used mode by a single keystroke to simplify the workflow for efficiency.



One-Key exam mode switch

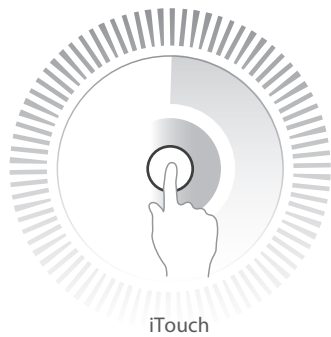
Higher Ergonomics Design

Full range of application tools: accuracy guarantee with convenience

DC-40 Crystal delivers a range of tools that maximize diagnostic accuracy with convenience. Covering General Imaging, OB/GYN and Cardiology, DC-40 Crystal provides you with a complete solution for mainstream clinical applications, with simplified workflow for efficiency.

iTouch

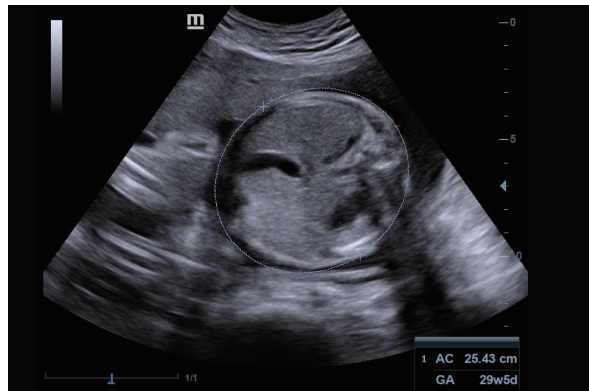
iTouch is a one-button auto image optimization solution, which is able to optimize the imaging quality automatically, including in B/PW mode.



iTouch

Smart OB

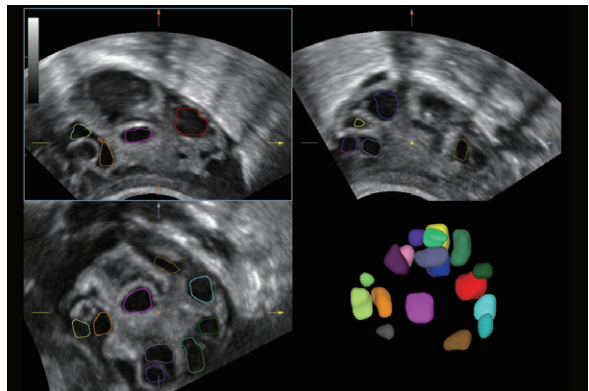
Smart OB provides accurate auto measurements for most frequently examined fetal parameters including BPD, OFD, HC, AC and FL.



Smart OB

Smart FLC

Smart FLC is a tool to automatically detect the number of follicles, and calculate the of each follicle. It also provides a report with color marks for study.



Smart FLC

Smart Face

Smart Face provides fast and intelligent optimization for fetal face with one-touch operation. It immediately removes occlusions and eliminates noise information, generating an optimal view of the fetal face with more simplicity.

iLive

Integrating a ray-casting algorithm with a new virtual lighting modality, iLive generates an amazingly realistic view of the fetus with human skin-like images.

Ergonomic for ease-of-use



Higher Reliable Dependence

For decades, Mindray cares about using intelligence to enhance the safety, accuracy and stability of its products, to ensure the satisfaction during your daily diagnosis.

Guarantee of safety and stability:

-  **EMC (Electro Magnetic Compatibility)**
By obtaining the CB Test Certificate (the certificate for EMC approval, Ref. Certif. No. FI-31332), DC-40 Crystal reaches the highest anti-interference level assurance, which ensures the stability of its imaging quality.
-  **Class B (Power supply requirement)**
The power supply level required by DC-40 Crystal is Class B. It can work under not only hospital power supply condition (Class A), but city power supply condition (Class B), and it offers you more safety and compatibility when you operate it in any complicated environment.
-  **iPower (built-in battery)**
Configured with a built-in battery, which has obtained the CB Test Certificate (the certification for battery reliability approval, Ref. Certif. No.SG PSB-BT-00022), DC-40 Crystal supports scanning for more than 80 minutes without external power supply, which enhances the continuity of your daily work even when the power supply is poor, and ensures the mobility.



For value-range ultrasound diagnostic systems, it is more important to ensure high capability, reliability and ease-of-use through intelligent planning and customer-oriented consideration, instead of simply focusing on improving operation efficiency. This is the Mindray's unique attitude towards the development of value-range ultrasound systems.

A6 Analogue and Digital Black and White Thermal Printer



Overview

High speed, high quality black & white printing of medical images in a compact space-saving footprint with analogue and digital inputs

Wireless Printing Capability

Features

High print quality

Dual cutter configuration

A6 prints in less than two seconds

Hybrid operation with analogue and digital inputs

Store pictures on a USB flash drive

Compact, space-saving design

Enhanced operability

Hard copy reference of print settings

Uses widely available print media

Wide PC compatibility

Quick guide print

Wireless Printing Capability*

Compliance with Medical Safety Standards

Specifications

[illegible]

Gallery



DC-40 Crystal

Diagnostic Ultrasound System

Datasheet

Release V03.00.00



1 System Overview

1.1 Application

- Abdomen
- Obstetrics
- Gynecology
- IVF (In-Vitro Fertilization)
- Cardiology
- Small parts
- Urology
- Vascular
- Pediatrics
- Emergency Medicine
- Nerve
- Others

1.2 Transducer types

- Curved array transducer
- Linear array transducer
- Phased array transducer
- 4D Volume transducer

1.3 Imaging modes

- B-Mode
- THI and PSH™ (Phase Shift Harmonic Imaging)
- M-Mode/Color M-mode
- Free Xros M™ (Anatomical M-mode)
- Free Xros CM™ (Curved Anatomical M-mode)
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- Pulsed Wave Doppler
- Continuous Wave Doppler
- TDI
- Smart 3D™ (Freehand 3D)
- 4D
- Natural Touch Elastography
- iScape™ View (Panoramic Imaging)
- UWN (Ultra Wideband Non-linear Contrast Imaging™)

1.4 Standard features

- B-Mode
- THI and PSH™

- M-Mode
 - Color M Mode
 - Color Doppler Imaging
 - Power Doppler Imaging and Directional PDI
 - Pulsed Wave Doppler
 - iBeam™ (Spatial Compound Imaging)
 - iClear™ (Speckle Suppression Imaging)
 - iTouch™ (Auto Image Optimization)
 - Zoom/iZoom (Full Screen Zoom)
 - FCI (Frequency Compound Imaging)
 - B steer
 - ExFOV (Extended Field of View)
 - Raw data processing
 - 4 active universal probe ports
 - 1TB hard drive
 - 7 USB ports
 - iStorage, iMeasurement, iReport
 - MedSight
 - Smart Installment Reminder
 - Smart Track
- ## 1.5 Optional features
- iScape™ View
 - Auto IMT
 - UWN Contrast Imaging™
 - Natural Touch Elastography
 - Continuous Wave Doppler
 - ECG
 - Free Xros M™
 - Free Xros CM™
 - TDI (Include TVI, TVD, TVM, TEI)
 - TDI QA (TDI Quantitative Analysis)
 - Smart 3D™
 - Real-time 4D
 - iPage™ (Multi-Slice Imaging)
 - iLive
 - IVF
 - Smart OB™ (Auto OB measurement)
 - Smart NT™ (Auto NT measurement)

- Smart Face
- Smart V™
- Smart FLC
- DICOM
- Clinical Measurement Package
- Smart Bladder
- iNeedle
- iScanHelper
- Built-in battery
- Gel warmer
- Built-in wireless adapter
- DVD R/W driver
- Pencil probe port
- Barcode reader
- Network accessory package

1.6 Language support

- Software: English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Czech, Polish, Turkish, Norwegian, Finnish, Danish, Icelandic, Swedish, Serbian
- Keyboard input: English, Chinese, German, Spanish, French, Italian, Portuguese, Russian, Czech, Polish, Icelandic, Norwegian, Swedish, Finnish, Turkish, Danish, Serbian
- Control panel overlay: German, French, Russian, Italian, Spanish, Portuguese, Czech, Polish
- User manual: English, Chinese, German, Spanish, Italian, Portuguese, Turkish, Serbian, Greek, French, Russia

2 Physical Specification

2.1 Dimension and weight

- Fold (adjustable support arm): 875mm (Depth) x 543mm (Width) x 1200mm (Height)
- Unfold (adjustable support arm): 875mm (Depth) x 543mm (Width) x 1655mm (Height)
- Weight:

<75 Kg (standard configuration without probes)

2.2 Monitor

- High resolution color LED monitor
Independent tilt up of 110 degrees from horizontal and swivel left/right of -90 to 90 degrees
- Frame rate (Hz): 60Hz
- Digital on-screen display of brightness and contrast controls
- Viewing angle: 89° left/right; 89° up/down
- Resolution: 1920x1080 (21.5 inch)

2.3 Wheels

- Diameter: 100 mm
- Castors (4): total lock and break

2.4 Probe port and holder

- Probe ports: 4 active ports, 1 more for pencil probe only
- Detachable probe holder: 8 as standard, including one dedicated holder for endocavity probe (left side holder as default, possible to select it as the right side holder before order) and one dedicated holder for pencil probe

2.5 Electrical power

- Voltage: 100-240V~
- Frequency: 50/60 Hz
- Power consumption: Max. 600VA

2.6 Operating Environment

- Ambient temperature: 0-40 °C
- Relative humidity: 30%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.7 Storage & Transportation Environment

- Ambient temperature: -20-55 °C
- Relative humidity: 30%-95% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

3 User Interface

3.1 Control panel

- User-centric control panel with home-based layout favors easy access to keys
- Backlit keys ensure accurate work in the dark room
- 6 Programmable keys available for user-defined functions (<P>,<F3-F6>,<F9>)
- 8-segment TGC control
- Full-sized, backlit QWERTY keyboard for text input, function keys and system programming
- Adjustable key volume and trackball speed meet different needs
- Dedicated palm rest design to help reduce user repetitive stress injury
- Independent rotation and up/down of control panel facilitates optimal positioning
 - rotate: 45 ± 3 degrees (from center)
 - down/up: 145 ± 15 mm (pull 55 mm range)

3.2 Touch screen

- 13.3-inch LED touch screen
- Resolution: 1920*1080
- Touch screen panel angle adjustable for easy visualization: 30 degrees in rotation
- Digital brightness and contrast adjustment through preset
- Viewing angle: 85 degrees left/right; 85 degrees up/down
- Support thin latex gloves on touch screen.

3.3 System boot-up

- Boot-up from complete shut-down in less than 50 sec
- Shut-down in less than 25 sec

3.4 Comments

- Supports text input and arrow
- Adjustable text size and arrow size
- Supports home position

- Covers various application
- User customizable

3.5 Body marks

- More than 140 bodymarks for versatile application
- User customizable

3.6 Exam mode presets

36 system exam modes (unlimited number for user-defined ones)

3.7 Screen information*

- Common info:
 - Mindray logo
 - Hospital name
 - Exam date
 - Exam time
 - Acoustic power
 - Mechanical index
 - ID, Last name, First Name, Middle initial, Gender, Age
 - Probe model
 - ECG icon (when ECG connected),
 - Operator
 - TGC Curve
 - Focus position
 - Thumbnail
 - Imaging parameters
 - Help guidance

*Not all items are listed in this part, detail info please refer to user manual

4 Imaging Parameters

4.1 Overview

- Echo-enriched Beamforming
- Up to 127648 channels
- 12-beamforming

4.2 B-mode

- Display formats: Single(B), Dual(B+B), Quad(4B)
- iClear™: Off; 4 steps
- iBeam™: Off/On
- iTouch™
- iTouch Brightness: -12~12
- FCI

- Frequency (depend on probe)
- B steer: available on linear transducers, 3 levels
- ExFOV: available on convex, linear, and volume transducers
- Depth: 30 levels (0.9-38.8 cm; all depend on transducer)
- Frame rate (max): 1400 f/s
- Acoustic output power: 32 levels
- TGC: 8 pods on control panel
- LGC: 8 segments on touch screen
- Dynamic range: 30-250, 5/step
- Gain: 0-100
- Focus number: 1-4 (depend on transducer)
- Focus position: 16 levels
- FOV: continuously adjustable
- Line density: L, M, H, UH
- Persistence: 0~7, 1/step
- Horizontal Scale: on/off
- L/R flip and U/D flip: on/off
- Rotation: 0, 90, 180, 270
- TSI: general/muscle/fluid/fat
- Gray Map: 25 types
- Tint map: off; 25 types
- Auto merge: on/off
- Middle Line: on/off

4.3 THI and PSH™

- Available on all types of transducer
- Patent PSH™ technology, obtains purer harmonic, better contrast resolution, higher SNR, exceptional high frequency harmonic
- iClear™ available
- Frequency: depends on probe

4.4 M-mode

- Display formats: V2:3, V3:2, H2:3, V3:1, FULL (V: vertical, H: horizontal)
- Color M-mode available
- Acoustic output power: 32 levels
- Dynamic range: 30-240, 5/step
- Gain: 0-100
- M sweep speeds: 6 levels;
- M soften: 0~14, 1/step

- Tint map: off; 25 types
- Gray Map: 25 types
- Edge enhance: 0~3, 1/step

4.5 Free Xros M™

- Display formats: V2:3, V3:2, H2:3, V3:1 (V: vertical, H: horizontal)
- Color Free Xros M available
- Up to 3 lines
- Display all lines
- Sweep speeds: 6 levels
- M Tint map: off; 25 types
- Gray Map: 25 types

4.6 Free Xros CM™

- Only available in TDI mode
- Display formats: V2:3, V3:2, H2:3, V3:1 (V: vertical, H: horizontal)
- Sweep speeds: 6 levels
- Tint map: off; 25 types
- Gray Map: 25 types
- Edit, undo, delete function for curved line

4.7 Color Doppler Imaging

- Dual live
- Frequency
- Steer: max. 20 degrees (linear transducer)
- Max frame rate: 1302 f/s
- Acoustic output power: 32 levels
- Gain: 0-100
- ROI size/position: adjustable
- Scale: 30 steps, 5 cm/s to 100 cm/s
- Baseline: -8-8, 1/step
- Wall filter: 0-7, 1/step
- PRF: 0.3 kHz to 14.8 kHz
- Packet size: 0-3, 1/step
- Smooth: 0-4, 1/step
- B/C align: on/off
- Priority: 0-100%, 10%/step
- Color map: 21 types
- Invert: on/off
- Persistence: 0-4, 1/step
- Velocity tag: on/off
- Line density: L, M, H, UH
- Smart Track: on/off

4.8 Power Doppler Imaging

- Dual live
- Support directional power Doppler
- Frequency
- Acoustic output power: 32 levels
- Dynamic range: 10-70, 5/step
- Gain: 0-100
- ROI size/position: adjustable
- Scale: 30 steps
- Wall filter: 0-7, 1/step
- PRF: 0.3 kHz to 14.8 kHz
- Packet size: 0-3, 1/step
- Smooth: 0-4, 1/step
- B/C align
- Priority: 0-100%, 10%/step
- Power map: 4 types
- Directional color map: 4 types
- Persistence: 0-4, 1/step
- Line density: L, M, H, UH

4.9 PW/CW-Mode

- Display formats: V2:3, V3:2, H2:3, V3:1, FULL (V: vertical, H: horizontal)
- Duplex/Triplex
- Frequency
- Sample volume size: 0.5-20 mm (PW only)
- Sample gate depth: adjustable
- PW Scale: 30 steps, 4.7 cm/s to 924 cm/s
- CW Scale: 30 steps, 3.1 cm/s to 6160 cm/s
- Baseline: -4-4, 1/step
- PW Steer: max. 20 degrees (linear transducer)
- Volume: 0-100%, 2%/step
- PW PRF: 0.7 kHz to 24 kHz
- CW PRF: 0.4 kHz to 160 kHz
- Gain: 0-100
- Dynamic range: 24-72, 2/step
- Sweep speed: 6 steps
- Wall filter: 0-6, 1/step
- Invert: on/off
- Angle correction: -89-89 degrees, 1/step

- Quick angle: -60, 0, 60 degrees
- Gray map: 25 types
- Tint map: Off; 25 types
- Time/frequency resolution: 0-4, 1/step
- Auto calc: on/off (PW only)
- Auto calc cycle: 1-5 (PW only)
- Trace area: above, below, all (PW only)
- iTouch (PW only)
- HPRF (PW only)

4.10 TVI/TEI (Tissue Velocity/Energy Imaging, included in TDI option)

- Available on phased array transducer
- Dual live: side by side displays B and B+TVI
- Max frame rate: 1757 f/s
- PRF: 0.4 kHz to 9.9 kHz
- Acoustic output power: 32 levels
- Gain: 0-100
- Dynamic range: 10-70, 5/step (TEI only)
- ROI size/position: adjustable
- Scale: 30 steps, 5 cm/s to 100 cm/s (TVI only)
- Baseline: -8-8, 1/step (TVI only)
- Wall filter: 0-7, 1/step
- Packet size: 0-3, 1/step
- Smooth: 0-4, 1/step
- B/C align
- Priority: 0-100%, 10%/step
- TVI maps: 10 types
- TEI maps: 8 types
- Invert: on/off (TVI only)
- Persistence: 0-4, 1/step
- Velocity tag (TVI only): on/off
- Line density: L, M, H, UH

4.11 TVD (Tissue Velocity Doppler, included in TDI option)

- Available on phased array transducer only
- Display formats: V2:3, V3:2, H2:3, V3:1, FULL (V: vertical, H:

horizontal)

- Sample volume size: 0.5-20 mm
- Sample gate depth: adjustable
- Scale: 30 steps, 4.7 cm/s – 739.2 cm/s
- Baseline: -4-4, 1/ step
- Volume: 0-100%, 2%/step
- PRF: 0.7 kHz to 24 kHz
- Gain: 0-100
- Dynamic range: 24-72, 2/step
- Sweep speed: 6 steps
- Wall filter: 0-6, 1/step
- Invert
- Angle correction: -89-89 degrees, 1/step
- Quick angle: -60, 0, 60 degrees
- Gray map: 25 types
- Tint map: Off; 25 types
- Time/frequency resolution: 0-4, 1/step

4.12 TVM (Tissue Velocity Motion, included in TDI option)

- Available on phased array transducer only
- Display formats: V2:3, V3:2, H2:3, V3:1, FULL (V: vertical, H: horizontal)
- Dynamic range: 30-240, 5/step
- Gain: 0-100
- M sweep speeds: 6 level
- M soften: 0-14, 1/step
- Gray Map: 25 types
- Tint Map: off, 25 types
- Edge enhancement: 0-3, 1/step

4.13 TDI QA

- Dedicated quantification tool for TDI velocity analysis
- Up to 8 of ROI
- Delete all
- Delete current
- ROI tracking: tracking ROI along with cardiac movement
- Std.Height: 1.5-50 mm
- Std.Width: 1.5-50 mm
- Std.Angle: -89-90 degrees

- Export: export current data as CSV format file

4.14 Smart 3D™

- Smart 3D
 - Acquisition Method: Rocked, Linear
 - iClear
 - VR: on/off, select volume rendered image
 - MPR: on/off, select A, B and C plane
 - Display formats: MPR only /asymmetric
 - VOI: on/off
 - Reset: all, orientation, reset curve
 - Active quadrant: A, B, C, VR
 - VR orientation: 0, 90, 180, 270
 - Inversion: on/off
 - Accept VOI: on/off
 - Flip: flip VR
 - Sync: synchronize VR with selected plane
 - Render modes: Surface, Min, Max, X-ray, iLive
 - View direction: down/up, left/right, front/back
 - Threshold: 0-100%, 1/step (only on VR)
 - Opacity: 0-100%, 5%/step (only on VR)
 - Smooth: 0-10, 1/step
 - Brightness: 0-100%, 2%/step
 - Contrast: 0-100%, 2%/step
 - Tint: off; 25 types
- Auto rotation
 - Rotation control: play, single loop, loop
 - Direction: left/right, up/down
- Edit:
 - Area selection: inside polygon, outside polygon, inside contour, outside contour, inside rect, outside rect
 - Undo: undo, undo all

4.15 4D

- Available on volume transducer
- Static 3D and 4D
 - 4D frame rate: max. 50 vps on DE11-3E
 - iClear
 - VR: on/off, select volume rendered image
 - MPR: on/off, select A, B and C plane
 - Display formats: MPR only / asymmetric
 - VOI: on/off
 - Reset: all, orientation, reset curve
 - Active quadrant: A, B, C, VR
 - VR orientation: 0, 90, 180, 270
 - Inversion: on/off
 - Accept VOI: on/off
 - Flip: flip VR
 - Sync: synchronize VR with selected plane
 - Render modes: Surface, Min, Max, X-ray, iLive
 - View direction: down/up, left/right, front/back
 - Threshold: 0-100%, 1/step (only on VR)
 - Opacity: 0-100%, 5/step (only on VR)
 - Smooth: 0-10, 1/step
 - Brightness: 0-100%, 2%/step
 - Contrast: 0-100%, 2%/step
 - Tint: off; 25 types
 - Face+: Off, 1-3.
- iPage™
 - Slice display mode: Slice only, Slice with MPR
 - Slice cut direction: Horizontal and Vertical
 - Slice layout: 2*2, 3*3, 4*4, 5*5
 - Active quadrant: A plane, B plane, or C plane
 - Reset: All, Reset Curve, Reset Ori
 - Range Pos: left or right

- Spacing: 0.5-10 mm, 0.1 mm/step
- Slice Number: ranging from 3 to max. 25, depends on slice layout.
- Slice Position: a unique number for current selected slice.
- iLive
 - Shading
 - Light Position: 6
 - Render Modes: iLive
 - Soft View
 - Grad View
- Auto rotation
 - Rotation control: play, single loop, loop
 - Direction: left/right, up/down
- Edit
 - Area selection: inside polygon, outside polygon, inside contour, outside contour, inside rect, outside rect
 - Undo: undo, undo all

4.16 Smart Face

- Recognize fetal face automatically and then display the face in a recommended viewing angle
- FaceContact: -15~15
- VR Orientation: 0°, 90°, 180°, 270°

4.17 Smart V™

- Auto 3D volume calculation
- Manual ROI on A, B, C plane separately
- Auto detect contour of target
- Volume result shows in result window
- Edit VOI, Reset Ori
- Active Quadrant: A, B, C, Smart-V

4.18 Smart FLC

- Automatic follicle calculation
- Edit ROI and detect follicle contour automatically
- Undo: Undo, Redo, Undo All
- Active Quadrant: A, B, C, Follicle
- Calc: Off/On

- Edit: Off/On
- Edit: Divide, Merge, Add/Del

4.19 Smart Track

- Available on linear probes for Upper Ext Artery, Upper Ext Vein, Lower Ext Artery, Lower Ext Vein, carotid, IMT, EM Vascular exam.
- Enable the function under Color/Power mode, the angle and the position of the ROI are adjusted automatically.
- Enable the function under B+C+PW mode, the angle and the position of the PW sampling line, SV size, SV angle and SV position are adjusted automatically.

4.20 iScape™ View

- Acquisition method: B and Power
- Supports velocity indicator
- Actual size: on/off
- Fit size: on/off
- Ruler: on/off
- Tint map: off; 25 types
- Rotation: 0-355 degrees, 5/step

4.21 Elastography

- Available on L13-3, 7L4B, 7L4A, L12-3E, L14-6NE and V11-3
- Available on Thyroid, Breast, MSK and Gynecology modes
- Stress compensation technology reduces deeper tissue artifacts, obtains more uniform stress throughout whole field
- Stress indicator: supports frame by frame stress indication
- Display format: Dual live, Single E
- Elasto Map: 6 types
- Smooth: 0-5
- Invert: on/off
- Opacity: 6 steps

4.22 UWN Contrast Imaging™*

- Ultra Wideband Non-linear (UWN) contrast imaging technology, which provides exceptional contrast agent

detecting capability, not only extracts second harmonic, but also non-linear fundamental signals

- Available on C6-2, 3C5A and SC5-1N
- Available on Adult ABD mode
- Supports Low MI contrast imaging
- Timer1: on/off
- Timer2: on/off
- Pro capture: captures prospective image less than 480s
- Retro capture: captures retrospective image less than 120s
- Dual live: side by side displays tissue image and contrast image
- Destruct: instantly destroy contrast bubbles
- iClear: off; 4 steps
- Mix: mix contrast image with tissue image
- Mix map: 7 types, available when Mix mode is active
- Persistence: 8 steps
- Dynamic range: 30-240, 5/step
- Gray map: 25 types; inactive when Mix mode is in use
- Tint map: off; 25 types
- Supports U/D Flip and L/R Flip
- Rotation: 90 degrees/step
- HImgPos: transpose position of contrast and tissue image
- Line density: L/M/H/UH
- DestructAP: 32 levels
- Destruct time: 500-2000 ms

4.23 iBeam™

- Spatial compound imaging
- 3 angles maximum
- Available on all convex and linear transducers

4.24 iClear™

- Speckle suppression imaging
- Available for B, 3D, 4D

4.25 iTouch™

- Auto image optimization
- B-mode: gain, TGC

- Color: gain
- Power: gain
- PW: baseline, scale, PRF, WF

4.26 B steer

- Only for linear transducers

4.27 ExFov

- Extended field of view
- Available for all convex, linear and volume transducers

4.28 Zoom

- Zoom: Spot zoom (write zoom) up to 10x, Pan zoom (read zoom) 0.8-10
- iZoom: convertible 3 steps; normal image, zoom standard area, zoom only image area

4.29 QSave

- Quick save image parameter setting after image adjustment done
- Support Save, Save as, Restore

4.30 iScanHelper

- Tutorial function as a guidance to show basic scanning skill with graphic of probe position, schematic of anatomy and example clinical image
- Support ABD, OB/GYN, Thyroid, Breast and Testicle applications

4.31 iNeedle

- Needle visualization enhancement
- Needle steer angle adjustable
- B/iNeedle: on/off

5 Cine Review and Raw Data

Processing

5.1 Cine review

- Available in all modes
- Frame by frame manual cineloop review or auto playback with variable speed
- Maximum cine memory up to 12390 frames or 181.1 s (M-mode)/169.6s (PW-mode)

- Retrospective and prospective storage are available and length is pre-settable (Max. time 480 s, Max. frames: 192039)
- Maximum 4D cine memory up to 30719 frames or 120s
- Frame compare: displays one cine in dual format and allows frame by frame compare side by side
- Image/cine compare: max 4 for 2D/Color/Power/TDI files compare; max 2 for M/PW/TVD/TVM files compare (compare cines which are saved in same patient file)
- Jump to first and jump to last: one keystroke go to first or last frame in the cine

5.2 Raw data processing

- B-mode:
 - TGC
 - Gain
 - Gray Map
 - Tint Map
 - iClear
 - L/R Flip
 - U/D Flip
 - Rotation
 - LGC
 - Auto Merge
 - H Scale
- M-mode:
 - Gray Map
 - Tint Map
- Color:
 - Baseline
 - Smooth
 - Color Map
 - Priority
 - Dual Live
 - Invert
 - Velocity tag
- PW:
 - Gain
 - Baseline

- Volume
- Angle
- Dyn Ra.
- Gray Map
- Tint Map
- Invert
- Quick Angle
- Auto Calculate
- Auto Calc Cycle
- Auto Calc Parameter
- Trace Area

6 Measurement/Analysis and Report*

6.1 Generic measurements

- B-mode
 - Distance
 - Ellipse
 - Trace
 - Spline
 - Cross
 - Angle
 - Double Dist
 - Trace Len
 - Trace Len(Spline)
 - Parallel
 - B-Profile
 - B-Hist(Ellipse)
 - B-Hist(Trace)
 - B-Hist(Spline)
 - B-Hist(Rectangle)
 - Depth
 - Color Vel
 - Color Vel Profile
 - IMT
-
- Volume
 - Volume(Ellipse)
 - Volume(E+Dist.)
 - Ratio(D)
 - Ratio(Ellipse)
 - Ratio(Spline)
 - Ratio(Cross)

Volume

Volume

Volume(Ellipse)

Volume(E+Dist.)

Ratio(A)

Ratio(Trace)

Ratio(Ellipse)

Ratio(Spline)

Ratio(Cross)

Volume Flow

Vas Area

TAMEAN

TAMAX

- M-Mode
 - HR
 - Slope
 - Distance
 - Time
 - Velocity
 - D-Mode
 - PS/ED
 - Vel
 - HR
 - Time
 - Acceleration
 - D Trace
-
- Volume Flow
- Vas Area
- TAMEAN
- TAMAX

6.2 Application measurement package

- Abdominal
 - B-Mode
 - Liver
 - Renal L
 - Renal H
 - Renal W
 - Cortex
 - Adrenal L
 - Adrenal H

Adrenal W
 CBD
 Portal V Diam
 CHD
 GB L
 GB H
 GB wall th
 Panc duct
 Panc head
 Panc body
 Panc tail
 Spleen
 Aorta Diam
 Aorta Bif
 Iliac Diam
 Pre-BL L
 Pre-BL H
 Pre-BL W
 Post-BL L
 Post-BL H
 Post-BL W
 Ureter

 Renal Vol
 Pre-BL Vol
 Post-BL Vol
 Mictur.Vol

 Kidney
 Renal L
 Renal H
 Renal W
 Cortex
 Bladder
 Pre-BL L
 Pre-BL H
 Pre-BL W
 Post-BL L
 Post-BL H
 Post-BL W
 Adrenal
 Adrenal L
 Adrenal H
 Adrenal W

Smart Bladder
 XS Bladder
 Sag Bladder

D-Mode
 Ren A Org
 Arcuate A
 Segment A
 Interlobar A
 Renal A
 M Renal A
 Renal V
 Aorta
 Celiac Axis
 SMA
 C Hepatic A
 Hepatic A
 Splenic A
 IVC
 Portal V
 M Portal V
 Hepatic V
 Lt Hepatic V
 Rt Hepatic V
 M Hepatic V
 Splenic V
 SMV

- Gynecology
 - B-Mode
 - UT L
 - UT H
 - UT W
 - Cervix L
 - Cervix H
 - Cervix W
 - Endo
 - Ovary L
 - Ovary H
 - Ovary W
 - Follicle1 L
 - Follicle1 W
 - Follicle1 H
 - Follicle2 L
 - Follicle2 W

Follicle2 H
 Follicle3 L
 Follicle3 W
 Follicle3 H
 Follicle4 L
 Follicle4 W
 Follicle4 H
 Follicle5 L
 Follicle5 W
 Follicle5 H
 Follicle6 L
 Follicle6 W
 Follicle6 H
 Follicle7 L
 Follicle7 W
 Follicle7 H
 Follicle8 L
 Follicle8 W
 Follicle8 H
 Follicle9 L
 Follicle9 W
 Follicle9 H
 Follicle10 L
 Follicle10 W
 Follicle10 H
 Follicle11 L
 Follicle11 W
 Follicle11 H
 Follicle12 L
 Follicle12 W
 Follicle12 H
 Follicle13 L
 Follicle13 W
 Follicle13 H
 Follicle14 L
 Follicle14 W
 Follicle14 H
 Follicle15 L
 Follicle15 W
 Follicle15 H
 Follicle16 L
 Follicle16 W
 Follicle16 H

Ovary Vol
 UT Vol
 UT SUM
 UT-L/CX-L
 Follicle1
 Follicle2
 Follicle3
 Follicle4
 Follicle5
 Follicle6
 Follicle7
 Follicle8
 Follicle9
 Follicle10
 Follicle11
 Follicle12
 Follicle13
 Follicle14
 Follicle15
 Follicle16

 Uterus
 UT L
 UT H
 UT W
 Endo
 Uterine Cervix
 Cervix L
 Cervix H
 Cervix W
 Ovary
 Ovary L
 Ovary H
 Ovary W
 Follicle1
 Follicle1 L
 Follicle1 W
 Follicle1 H
 Follicle2
 Follicle2 L
 Follicle2 W
 Follicle2 H
 Follicle3
 Follicle3 L

Follicle3 W
 Follicle3 H
 Follicle4
 Follicle4 L
 Follicle4 W
 Follicle4 H
 Follicle5
 Follicle5 L
 Follicle5 W
 Follicle5 H
 Follicle6
 Follicle6 L
 Follicle6 W
 Follicle6 H
 Follicle7
 Follicle7 L
 Follicle7 W
 Follicle7 H
 Follicle8
 Follicle8 L
 Follicle8 W
 Follicle8 H
 Follicle9
 Follicle9 L
 Follicle9 W
 Follicle9 H
 Follicle10
 Follicle10 L
 Follicle10 W
 Follicle10 H
 Follicle11
 Follicle11 L
 Follicle11 W
 Follicle11 H
 Follicle12
 Follicle12 L
 Follicle12 W
 Follicle12 H
 Follicle13
 Follicle13 L
 Follicle13 W
 Follicle13 H
 Follicle14
 Follicle14 L

Follicle14 W
 Follicle14 H
 Follicle15
 Follicle15 L
 Follicle15 W
 Follicle15 H
 Follicle16
 Follicle16 L
 Follicle16 W
 Follicle16 H

- Obstetrics

B-Mode
 GS
 YS
 CRL
 NT
 BPD
 OFD
 HC
 AC
 FL
 TAD
 APAD
 TCD
 CM
 LVW
 HW
 OOD
 IOD
 HUM
 Ulna
 RAD
 Tibia
 FIB
 CLAV
 Vertebrae
 MP
 Foot
 Ear
 APTD
 TTD
 FTA
 THD
 HrtC

TC	RPA Diam(Z-Score)
Umb VD	IVC Diam(Z-Score)
F-kidney	AV Diam(Z-Score)
Mat Kidney	MPA Diam(Z-Score)
Cervix L	RV Diam(Z-Score)
AF	LV Diam(Z-Score)
NF	RV Area(Z-Score)
Orbit	LV Area(Z-Score)
PL Thickness	RVIDd(Z-Score)
Sac Diam1	LVIDd(Z-Score)
Sac Diam2	AC(c)
Sac Diam3	-----
AF1	Mean Sac Diam
AF2	AFI
AF3	EFW
AF4	EFW2
LVIDd	HC/AC(Campbell)
LVIDs	FL/AC
LV Diam	FL/BPD
LA Diam	AXT
RVIDd	CI
RVIDs	FL/HC(Hadlock)
RV Diam	HC(c)
RA Diam	HrtC/TC
IVSd	TCD/AC
IVSs	LVW/HW
IVS	LVD/RVD
LV Area	LAD/RAD
LA Area	AoD/MPAD
RV Area	LAD/AoD
RA Area	MAD
Ao Diam	-----
MPA Diam	AFI
LVOT Diam	AF1
RVOT Diam	AF2
Facial Angle	AF3
HrtA	AF4
MV Diam(Z-Score)	
PV Diam(Z-Score)	M-Mode
Ao Asc Diam(Z-Score)	FHR
Ao Desc Diam(Z-Score)	LVIDd
Duct Art Diam(Z-Score)	LVIDs
TV Diam(Z-Score)	RVIDd
LPA Diam(Z-Score)	RVIDs

IVSd	RVDs(2D)
IVSs	LVPWd(2D)
RVIDd(Z-Score)	LVPWs(2D)
LVIDd(Z-Score)	RVAWd(2D)
	RVAWs(2D)
D-Mode	IVSd(2D)
Umb A	IVSs(2D)
Duct Veno	Ao Diam(2D)
Placenta A	Ao Arch Diam(2D)
MCA	Ao Asc Diam(2D)
Fetal Ao	Ao Desc Diam(2D)
Desc Aorta	Ao Isthmus(2D)
Ut A	Ao st junct(2D)
Ovarian A	Ao Sinus Diam(2D)
FHR	Duct Art Diam
Asc Aorta	Pre Ductal
RVOT	Post Ductal
LVOT	ACS(2D)
• Cardiology	LVOT Diam(2D)
B-Mode	AV Diam
LA Diam(2D)	AVA
LA Major	PV Diam
LA Minor	LPA Diam(2D)
RA Major	RPA Diam(2D)
RA Minor	MPA Diam(2D)
LV Major	RVOT Diam(2D)
LV Minor	MV Diam
RV Major	MVA
RV Minor	MCS(2D)
LA Area	MV EPSS(2D)
RA Area	TV Diam
LV Area(d)	TVA
LV Area(s)	IVC Diam(Insp)
RV Area(d)	IVC Diam(Expir)
RV Area(s)	SVC Diam(Insp)
LVIDd(2D)	SVC Diam(Expir)
LVIDs(2D)	LCA Diam
LVIDd(Teich-2D)	RCA Diam
LVIDs(Teich-2D)	VSD Diam
LVIDd(Cube-2D)	ASD Diam
LVIDs(Cube-2D)	PDA Diam
LVIDd(Gibson-2D)	PFO Diam
LVIDs(Gibson-2D)	PEd(2D)
RVDd(2D)	PEs(2D)

Diastole(Teich-2D)	HR(Simp SP A2C)
Systole(Teich-2D)	Simp SP(A4C)
Diastole(Cube-2D)	EDV(Simp SP-A4C)
Systole(Cube-2D)	ESV(Simp SP-A4C)
Diastole(Gibson-2D)	HR(Simp SP A4C)
Systole(Gibson-2D)	Simpson BP
HR(Teich 2D)	EDV(Simp BP-A2C)
HR(Cube 2D)	ESV(Simp BP-A2C)
HR(Gibson 2D)	EDV(Simp BP-A4C)
-----	ESV(Simp BP-A4C)
LA/Ao(2D)	HR(Simp BP)
Ao/LA(2D)	Cube(2D)
-----	Diastole(Cube-2D)
S-P Ellipse	Systole(Cube-2D)
LVLd apical(SP Ellipse)	IVSd(Cube-2D)
LVAd apical(SP Ellipse)	LVIDd(Cube-2D)
LVLs apical(SP Ellipse)	LVPWd(Cube-2D)
LVAs apical(SP Ellipse)	IVSs(Cube-2D)
HR(SP Ellipse)	LVIDs(Cube-2D)
B-P Ellipse	LVPWs(Cube-2D)
LVIDd(BP Ellipse)	HR(Cube 2D)
LVIDs(BP Ellipse)	Teichholz(2D)
LVAd sax MV(BP Ellipse)	Diastole(Teich-2D)
LVAs sax MV(BP Ellipse)	Systole(Teich-2D)
LVAd apical(BP Ellipse)	IVSd(Teich-2D)
LVAs apical(BP Ellipse)	LVIDd(Teich-2D)
HR(BP Ellipse)	LVPWd(Teich-2D)
Bullet	IVSs(Teich-2D)
LVLd apical(Bullet)	LVIDs(Teich-2D)
LVLs apical(Bullet)	LVPWs(Teich-2D)
LVAd sax MV(Bullet)	HR(Teich 2D)
LVAs sax MV(Bullet)	Gibson(2D)
HR(Bullet)	Diastole(Gibson-2D)
Mod.Simpson	Systole(Gibson-2D)
LVLd apical(Simp)	IVSd(Gibson-2D)
LVLs apical(Simp)	LVIDd(Gibson-2D)
LVAd sax MV(Simp)	LVPWd(Gibson-2D)
LVAs sax MV(Simp)	IVSs(Gibson-2D)
LVAd sax PM(Simp)	LVIDs(Gibson-2D)
LVAs sax PM(Simp)	LVPWs(Gibson-2D)
HR(Mod Simp)	HR(Gibson 2D)
Simp SP(A2C)	LA Vol(A-L)
EDV(Simp SP-A2C)	LA Diam(LA Vol A-L)
ESV(Simp SP-A2C)	LAA(A2C)

LAA(A4C)
 LA Vol(Simp)
 LA Vol(A2C)
 LA Vol(A4C)
 RA Vol(Simp)
 RA Vol(A4C)
 LV Mass(Cube-2D)
 IVSd(LV Mass Cube-2D)
 LVIDd(LV Mass Cube-2D)
 LVPWd(LV Mass Cube-2D)
 LV Mass(T-E)
 LVAd sax Epi(LV Mass T-E)
 LVAd sax Endo(LV Mass T-
 E)
 a
 d
 LV Mass(A-L)
 LVAd sax Epi(LV Mass A-L)
 LVAd sax Endo(LV Mass A-
 L)
 LVLd apical(LV Mass A-L)
 MVA(VTI)
 LVOT Diam(MVA VTI)
 LVOT VTI(MVA VTI)
 MV VTI(MVA VTI)
 AVA(VTI)
 LVOT Diam(AVA VTI)
 LVOT VTI(AVA VTI)
 AV VTI(AVA VTI)
 Qp/Qs
 AV Diam(Qp/Qs)
 AV VTI(Qp/Qs)
 AV HR(Qp/Qs)
 PV Diam(Qp/Qs)
 PV VTI(Qp/Qs)
 PV HR(Qp/Qs)
 PISA MR
 MR Rad
 MR Als Vel
 MR VTI(PISA MR)
 PISA AR
 AR Rad
 AR Als Vel
 AR VTI(PISA AR)

PISA TR
 TR Rad
 TR Als Vel
 TR VTI(PISA TR)
 PISA PR
 PR Rad
 PR Als Vel
 PR VTI(PISA PR)

M-Mode
 LA Diam(M)
 LVIDd(M)
 LVIDs(M)
 LVIDd(Teich-M)
 LVIDs(Teich-M)
 LVIDd(Cube-M)
 LVIDs(Cube-M)
 LVIDd(Gibson-M)
 LVIDs(Gibson-M)
 RVDd(M)
 RVDs(M)
 LVPWd(M)
 LVPWs(M)
 RVAWd(M)
 RVAWs(M)
 IVSd(M)
 IVSs(M)
 Ao Diam(M)
 Ao Arch Diam(M)
 Ao Asc Diam(M)
 Ao Desc Diam(M)
 Ao Isthmus(M)
 Ao st junct(M)
 Ao Sinus Diam(M)
 LVOT Diam(M)
 ACS(M)
 LPA Diam(M)
 RPA Diam(M)
 MPA Diam(M)
 RVOT Diam(M)
 MV E Amp
 MV A Amp
 MV E-F Slope
 MV D-E Slope

MV DE
 MCS(M)
 MV EPSS(M)
 PEd(M)
 PEs(M)
 LVPEP(M)
 LVET(M)
 RVPEP(M)
 RVET(M)
 Diastole(Teich-M)
 Systole(Teich-M)
 Diastole(Cube-M)
 Systole(Cube-M)
 Diastole(Gibson-M)
 Systole(Gibson-M)
 HR(Teich M)
 HR(Cube M)
 HR(Gibson M)
 HR
 TAPSE

 LA/Ao(M)
 Ao/LA(M)

 LV Tei Index(M)
 MV C-O dur(M)
 LVET(LV Tei Index-M)
 Cube(M)
 Diastole(Cube-M)
 Systole(Cube-M)
 IVSd(Cube-M)
 LVIDd(Cube-M)
 LVPWd(Cube-M)
 IVSs(Cube-M)
 LVIDs(Cube-M)
 LVPWs(Cube-M)
 HR(Cube M)
 Teichholz(M)
 Diastole(Teich-M)
 Systole(Teich-M)
 IVSd(Teich-M)
 LVIDd(Teich-M)
 LVPWd(Teich-M)
 IVSs(Teich-M)

LVIDs(Teich-M)
 LVPWs(Teich-M)
 HR(Teich M)
 Gibson(M)
 Diastole(Gibson-M)
 Systole(Gibson-M)
 IVSd(Gibson-M)
 LVIDd(Gibson-M)
 LVPWd(Gibson-M)
 IVSs(Gibson-M)
 LVIDs(Gibson-M)
 LVPWs(Gibson-M)
 HR(Gibson M)
 LV Mass(Cube-M)
 IVSd(LV Mass Cube-M)
 LVIDd(LV Mass Cube-M)
 LVPWd(LV Mass Cube-M)

D-Mode

MV Vmax
 MV E Vel
 MV A Vel
 MV E VTI
 MV A VTI
 MV VTI
 MV HR
 MV AccT
 MV DecT
 IVRT
 IVCT
 MV E Dur
 MV A Dur
 LVOT Vmax
 LVOT VTI
 LVOT HR
 LVOT AccT
 AAO Vmax
 DAA Vmax
 AV Vmax
 AV VTI
 AV HR
 LVPEP(Doppler)
 LVET(Doppler)
 AV AccT

AV DecT
 RVET(Doppler)
 RVPEP(Doppler)
 TV Vmax
 TV E Vel
 TV A Vel
 TV VTI
 TV HR
 TV AccT
 TV DecT
 TV A Dur
 RVOT Vmax
 RVOT VTI
 RVOT HR
 PV Vmax
 PV VTI
 PV HR
 PV AccT
 MPA Vmax
 RPA Vmax
 LPA Vmax
 PVein S Vel
 PVein D Vel
 PVein A Vel
 PVein A Dur
 PVein S VTI
 PVein D VTI
 PVein DecT
 IVC Vel(Insp)
 IVC Vel(Expir)
 SVC Vel(Insp)
 SVC Vel(Expir)
 MR Vmax
 MR VTI
 MS Vmax
 dP/dt
 AR Vmax
 AR VTI
 AR DecT
 AR PHT
 AR Ved
 TR Vmax
 TR Vmax(RVSP)
 TR VTI

PR Vmax
 PR VTI
 PR PHT
 PR Ved
 RAP
 VSD Vmax
 ASD Vmax
 PDA Vel(d)
 PDA Vel(s)
 Coarc Pre-Duct
 Coarc Post-Duct
 Ea(medial)
 Aa(medial)
 ARa(medial)
 DRa(medial)
 Sa(medial)
 Ea(lateral)
 Aa(lateral)
 ARa(lateral)
 DRa(lateral)
 Sa(lateral)
 HR
 Hepatic V S Vel
 Hepatic V D Vel

 MV E/A
 MVA(PHT)
 TV E/A
 TVA(PHT)

 MVA(VTI)
 LVOT Diam(MVA VTI)
 LVOT VTI(MVA VTI)
 MV VTI(MVA VTI)
 AVA(VTI)
 LVOT Diam(AVA VTI)
 LVOT VTI(AVA VTI)
 AV VTI(AVA VTI)
 LV Tei Index(Doppler)
 MV C-O dur(Doppler)
 LVET(LV Tei Index-
 Doppler)
 RVSP
 TR Vmax(RVSP)

RAP	Seminal W
PAEDP	Testicular L
PR Ved(PAEDP)	Testicular H
RAP	Testicular W
RV Tei Index	Ureter
TV C-O dur	Pre-BL L
RVET(RV Tei Index)	Pre-BL H
Qp/Qs	Pre-BL W
AV Diam(Qp/Qs)	Post-BL L
AV VTI(Qp/Qs)	Post-BL H
AV HR(Qp/Qs)	Post-BL W
PV Diam(Qp/Qs)	Prostate Mass1 d1
PV VTI(Qp/Qs)	Prostate Mass1 d2
PV HR(Qp/Qs)	Prostate Mass1 d3
PISA MR	Prostate Mass2 d1
MR Rad	Prostate Mass2 d2
MR Als Vel	Prostate Mass2 d3
MR VTI(PISA MR)	Prostate Mass3 d1
PISA AR	Prostate Mass3 d2
AR Rad	Prostate Mass3 d3
AR Als Vel	Testicular Mass1 d1
AR VTI(PISA AR)	Testicular Mass1 d2
PISA TR	Testicular Mass1 d3
TR Rad	Testicular Mass2 d1
TR Als Vel	Testicular Mass2 d2
TR VTI(PISA TR)	Testicular Mass2 d3
PISA PR	Testicular Mass3 d1
PR Rad	Testicular Mass3 d2
PR Als Vel	Testicular Mass3 d3
PR VTI(PISA PR)	Epididymis L
• Urology	Epididymis H
B-Mode	Epididymis W
Renal L	Scrotal Wall
Renal H	-----
Renal W	Renal Vol
Cortex	Prostate Vol
Adrenal L	Testicular Vol
Adrenal H	Pre-BL Vol
Adrenal W	Post-BL Vol
Prostate L	Mictur.Vol
Prostate H	-----
Prostate W	Kidney
Seminal L	Renal L
Seminal H	Renal H

Renal W	Testicular Mass2 d3
Cortex	Testicular Mass3
Adrenal	Testicular Mass3 d1
Adrenal L	Testicular Mass3 d2
Adrenal H	Testicular Mass3 d3
Adrenal W	Epididymis
Prostate	Epididymis L
Prostate L	Epididymis H
Prostate H	Epididymis W
Prostate W	Smart Bladder
Seminal Vesicle	XS Bladder
Seminal L	Sag Bladder
Seminal H	
Seminal W	
Testis	D-Mode
Testicular L	Testis A
Testicular H	Testis V
Testicular W	Epididymis A
	Epididymis V
Bladder	• Vascular
Pre-BL L	B-Mode
Pre-BL H	CCA IMT
Pre-BL W	Bulb IMT
Post-BL L	ICA IMT
Post-BL H	ECA IMT
Post-BL W	-----
Prostate Mass1	Stenosis D
Prostate Mass1 d1	Stenosis A
Prostate Mass1 d2	-----
Prostate Mass1 d3	IMT
Prostate Mass2	CCA IMT
Prostate Mass2 d1	Bulb IMT
Prostate Mass2 d2	ICA IMT
Prostate Mass2 d3	ECA IMT
Prostate Mass3	
Prostate Mass3 d1	D-Mode
Prostate Mass3 d2	CCA
Prostate Mass3 d3	Bulb
Testicular Mass1	ICA
Testicular Mass1 d1	ECA
Testicular Mass1 d2	Vert A
Testicular Mass1 d3	Innom A
Testicular Mass2	Subclav A
Testicular Mass2 d1	Axill A
Testicular Mass2 d2	Brachial A

Ulnar A
 Radial A
 Subclav V
 Axill V
 Cephalic V
 Basilic V
 Ulnar V
 Radial V
 C.Iliac A
 Ex.Iliac A
 CFA
 SFA
 Pop A
 TP Trunk A
 Peroneal A
 P.Tib A
 A.Tib A
 Dors.Ped. A
 C.Iliac V
 Ex.Iliac V
 Femoral V
 Saph V
 Pop V
 TP Trunk V
 Sural V
 Soleal V
 Peroneal V
 P.Tib V
 A.Tib V
 ACA
 MCA
 PCA
 AComA
 PComA
 BA
 IIA
 DFA
 Ba V
 Brachial V
 IIV
 CFV
 SFV
 DFV
 SSV

ASP
 BSP

 ICA/CCA

ABI
 ASP
 BSP

- Small Parts
B-Mode

Thyroid L
 Thyroid H
 Thyroid W
 Isthmus H
 Testicular L
 Testicular H
 Testicular W
 Breast Mass1 d1
 Breast Mass1 d2
 Breast Mass1 d3
 Breast Mass2 d1
 Breast Mass2 d2
 Breast Mass2 d3
 Breast Mass3 d1
 Breast Mass3 d2
 Breast Mass3 d3
 Breast Mass4 d1
 Breast Mass4 d2
 Breast Mass4 d3
 Breast Mass5 d1
 Breast Mass5 d2
 Breast Mass5 d3
 Breast Mass6 d1
 Breast Mass6 d2
 Breast Mass6 d3
 Breast Mass7 d1
 Breast Mass7 d2
 Breast Mass7 d3
 Breast Mass8 d1
 Breast Mass8 d2
 Breast Mass8 d3
 Breast Mass9 d1
 Breast Mass9 d2
 Breast Mass9 d3

Breast Mass10 d1
 Breast Mass10 d2
 Breast Mass10 d3
 Thyroid Mass1 d1
 Thyroid Mass1 d2
 Thyroid Mass1 d3
 Thyroid Mass2 d1
 Thyroid Mass2 d2
 Thyroid Mass2 d3
 Thyroid Mass3 d1
 Thyroid Mass3 d2
 Thyroid Mass3 d3
 Testicular Mass1 d1
 Testicular Mass1 d2
 Testicular Mass1 d3
 Testicular Mass2 d1
 Testicular Mass2 d2
 Testicular Mass2 d3
 Testicular Mass3 d1
 Testicular Mass3 d2
 Testicular Mass3 d3
 Epididymis L
 Epididymis H
 Epididymis W
 Scrotal Wall

 Thyroid Vol

 Thyroid
 Thyroid L
 Thyroid H
 Thyroid W
 Testis
 Testicular L
 Testicular H
 Testicular W
 Breast Mass1
 Breast Mass1 d1
 Breast Mass1 d2
 Breast Mass1 d3
 Breast Mass2
 Breast Mass2 d1
 Breast Mass2 d2
 Breast Mass2 d3

Breast Mass3
 Breast Mass3 d1
 Breast Mass3 d2
 Breast Mass3 d3
 Breast Mass4
 Breast Mass4 d1
 Breast Mass4 d2
 Breast Mass4 d3
 Breast Mass5
 Breast Mass5 d1
 Breast Mass5 d2
 Breast Mass5 d3
 Breast Mass6
 Breast Mass6 d1
 Breast Mass6 d2
 Breast Mass6 d3
 Breast Mass7
 Breast Mass7 d1
 Breast Mass7 d2
 Breast Mass7 d3
 Breast Mass8
 Breast Mass8 d1
 Breast Mass8 d2
 Breast Mass8 d3
 Breast Mass9
 Breast Mass9 d1
 Breast Mass9 d2
 Breast Mass9 d3
 Breast Mass10
 Breast Mass10 d1
 Breast Mass10 d2
 Breast Mass10 d3
 Thyroid Mass1
 Thyroid Mass1 d1
 Thyroid Mass1 d2
 Thyroid Mass1 d3
 Thyroid Mass2
 Thyroid Mass2 d1
 Thyroid Mass2 d2
 Thyroid Mass2 d3
 Thyroid Mass3
 Thyroid Mass3 d1
 Thyroid Mass3 d2
 Thyroid Mass3 d3

Epididymis	CRL
Epididymis L	BPD
Epididymis H	UT L
Epididymis W	UT H
Testicular Mass1	UT W
Testicular Mass1 d1	Endo
Testicular Mass1 d2	Ovary L
Testicular Mass1 d3	Ovary H
Testicular Mass2	Ovary W
Testicular Mass2 d1	-----
Testicular Mass2 d2	Renal Vol
Testicular Mass2 d3	Pre-BL Vol
Testicular Mass3	Post-BL Vol
Testicular Mass3 d1	Mictur.Vol
Testicular Mass3 d2	Ovary Vol
Testicular Mass3 d3	UT Vol
	UT SUM

D-Mode	Uterus
STA	UT L
ITA	UT H
• Orthopedics	UT W
B-Mode	Endo
HIP	Ovary
d/D	Ovary L
• Emergency	Ovary H
B-Mode	Ovary W
Renal L	Kidney
Renal H	Renal L
Renal W	Renal H
CBD	Renal W
Portal V Diam	Cortex
CHD	Bladder
GB wall th	Pre-BL L
Aorta Diam	Pre-BL H
Aorta Bif	Pre-BL W
Ureter	Post-BL L
Pre-BL L	Post-BL H
Pre-BL H	Post-BL W
Pre-BL W	
Post-BL L	
Post-BL H	
Post-BL W	
GS	
YS	
	M-Mode
	FHR
	D-Mode

- FHR
- Auto calculation
- PS
- ED
- MD
- PPG
- TAMAX
- Vol Flow(TAMAX)
- TAMEAN
- Vol Flow(TAMEAN)
- DT
- MPG
- MMPG
- VTI
- AT
- S/D
- D/S
- PI
- RI
- PV
- HR

6.3 Smart bladder

- Auto trace of bladder border in transverse and vertical section
- Auto measurement of bladder volume

6.4 Report

- Specific report template by application
- User-defined report template
- Editable value in report
- Images selectable
- Able to Export as PDF/RTF file

6.5 IMT

- Intima-Media Thickness Measurement
- Automatic detection of IMT when ROI is set
- Support CCA, ICA, ECA, Bulb IMT
- Near wall and far wall detection
- Angle selectable
- IMT Trend in report

6.6 Smart OB™

- Auto measurement for OB, a special tool for easy OB scan, and

greatly reduce time and increase productivity

- Support BPD, HC, OFD, FL, AC
- Better get GA before start auto AC
- Measurement result can be modified by user

6.7 Smart NT™

- NT auto measurement
- Auto detection of NT inside ROI

* Not all measurements are listed in this part; For more detailed information please refer to User Manual

7 Exam Storage and

Management

7.1 Exam storage

- 1TB hard drive. Max 726 GB internal hard drive for patient data storage
- Capable to store up to approximate 82602 single frames
- Direct digital storage of single frame and cine 2D, color and Doppler.

7.2 Exam management

- iStation™ workstation dedicated for patient exam management
- Patient exam query/retrieve
- Support review of current and past exam
- New exam, Active exam, Continue exam functions, End exam are available
- Support measurements and calculations on archived exam and images
- Export images as (BMP/JPG/TIFF/DCM/AVI/MP4 format)
- Support backup/send to USB devices, DVD-RW media

8 Connectivity

8.1 Ethernet Network Connection

- Cable connection
- Wireless connection: built-in wireless adaptor

8.2 DICOM 3.0

- DICOM basic
 - Verify (SCU, SCP)
 - Print
 - Store
 - Storage Commitment
 - Media Exchange
- DICOM Worklist
- DICOM Query/Retrieve
- DICOM Modality Performed Procedure Step - MPPS
- DICOM OB/GYN structure report
- DICOM Cardiac structure report
- DICOM Vascular structure report

8.3 iStorage (included in UltraAssist)

- Direct network storage tool between ultrasound system and personal computer

8.4 MedSight

- An interactive app that lets you transfer clinical images straight from Mindray Ultrasound system to a smart device, such as mobile phone or tablet PC.
- Needs to be installed on mobile terminal
- Transfer images or clips from system to mobile terminal through WiFi
- Support both iOS (7.0 and above) and Android (4.0 and above) powered system.
- For iOS powered smart device: DICOM is mandatory; For Android powered smart device: DICOM is not necessary

9 Transducers

9.1 Curved array

- 3C5A

- Application: Gynecology, obstetrics, abdominal, vascular, musculoskeletal, pediatric
- Bandwidth: 1.3~5.7 MHz
- Number of Elements: 128
- FOV (max): 72°
- Extended FOV: 92°
- Convex Radius: 50 mm
- Depth: 2.8-38.8 cm
- Physical Footprint: 76 mm × 29.5 mm
- Footprint: 62 mm × 16 mm
- B-mode Frequencies: 1.3~3.2, 1.9~4.6, 2.1~5.3, 2.3~5.7 [2.0, 3.5, 4.5, 5.0] MHz
- Harmonic Frequencies: 5.0, 6.0 MHz
- Doppler Frequencies: 2.5, 3.0 MHz
- Biopsy Guide: NGB-006, multi angle, reusable

- 6C2

- Application: Gynecology, Obstetrics, Abdominal, Vascular
- Bandwidth: 2.6~13.2 MHz
- Number of Elements: 128
- FOV (max): 102°
- Extended FOV: 122°
- Convex Radius: 15 mm
- Depth: 0.9-29.6 cm
- Physical Footprint: 33.5 mm × 24.8 mm
- Footprint: 29 mm × 10 mm
- B-mode Frequencies: 2.6~6.5, 3.2~7.9, 4.2~11.2, 5.2~13.2 [5.0, 6.5, 7.5, 8.5] MHz
- Harmonic Frequencies: 8.0, 9.0 MHz
- Doppler Frequencies: 4.4, 5.0 MHz
- Biopsy Guide: NGB-005, multi angle, reusable

- V11-3

- Application: Gynecology,

- obstetrics, urology
- Bandwidth: 2.4-12.8 MHz
- Number of Elements: 128
- FOV (max): 139°
- Extended FOV: 159°
- Convex Radius: 11 mm
- Depth: 1.8-29.6 cm
- Physical Footprint: 24.85 mm × 21.8 mm
- Footprint: 24 mm × 9 mm
- B-mode Frequencies: 2.4~6.2, 3.2~7.9, 4.0~10.3, 4.7~12.8 [5.0, 6.5, 7.5, 8.5] MHz
- Harmonic Frequencies: 8.0, 9.0 MHz
- Doppler Frequencies: 4.4, 5.0 MHz
- Biopsy Guide: NGB-004, single angle, reusable
- V10-4B
 - Application: OB/GYN, Urology
 - Bandwidth: 2.6-13.2 MHz
 - Number of Elements: 128
 - FOV (max): 160°
 - Extended FOV: 180°
 - Convex Radius: 10 mm
 - Depth: 1.8-29.6 cm
 - Physical Footprint: 22.1mm×21.5mm
 - Footprint: 22.1mm×9.1mm
 - B-mode Frequencies: 2.6~6.5, 3.2~7.9, 4.2~11.2, 5.2~13.2 [5.0, 6.5, 7.5, 8.5] MHz
 - Harmonic Frequencies: 8.0, 9.0 MHz
 - Doppler Frequencies: 4.0, 5.0 MHz
 - Biopsy Guide: NGB-004, single angle, reusable
- V10-4
 - Application: OB/GYN, Urology
 - Bandwidth: 2.6-13.2 MHz
 - Number of Elements: 128
 - FOV (max): 160°
- Extended FOV: 180°
- Convex Radius: 10mm
- Depth: 1.8-29.6 cm
- Physical Footprint: 22.1mm×21.5mm
- Footprint: 22.1mm×9.1mm
- B-mode Frequencies: 2.6~6.5, 3.2~7.9, 4.2~11.2, 5.2~13.2 [5.0, 6.5, 7.5, 8.5] MHz
- Harmonic Frequencies: 8.0, 9.0 MHz
- Doppler Frequencies: 4.0, 5.0 MHz
- Biopsy Guide: NGB-004, single angle, reusable
- CB10-4E (Biplane)
 - Application: Urology
 - Bandwidth: 2.6-13.2 MHz
 - Number of Elements: 128
 - Field of View (max): 165°
 - Extended FOV: 180°
 - Convex Radius: 9mm
 - Depth: 1.8-29.6 cm
 - Physical Footprint: 22.5 mm × 20.1mm
 - Footprint: 20.1 mm × 9.0mm
 - B-mode imaging Frequencies: 2.6~6.5, 3.2~7.9, 4.2~11.2, 5.2~13.2 [5.0, 6.5, 7.5, 8.5] MHz
 - Harmonic Frequencies: 8.0, 9.0 MHz
 - Doppler Frequencies: 4.7, 5.7 MHz
 - Biopsy Guide: NGB-004, single angle, reusable
- C6-2
 - Application: Gynecology, Obstetrics, Abdominal, Vascular
 - Bandwidth: 1.3-5.7 MHz
 - Number of Elements: 128
 - FOV (max): 60°
 - Extended FOV: 80°
 - Convex Radius: 60 mm

- Depth: 2.8~38.8 cm
 - Physical Footprint: 76.5mm x 28mm
 - Footprint: 68mm x 19.2mm
 - B-mode Frequencies: 1.3~3.2, 1.9~4.6, 2.1~5.3, 2.3~5.7 [2.0, 3.5, 4.5, 5.0] MHz
 - Harmonic Frequencies: 5.0, 6.0 MHz
 - Doppler Frequencies: 2.5, 3.0 MHz
 - Biopsy Guide: NGB-022, multi angle, reusable
 - SC5-1N
 - Application: Gynecology, obstetrics, pediatric, abdominal, vascular, urology
 - Bandwidth: 1.3-5.7 MHz
 - Number of Elements: 128
 - FOV (max): 62°
 - Extended FOV: 81°
 - Convex Radius: 60 mm
 - Depth: 2.8~38.8 cm
 - Physical Footprint: 76.7mm x 28mm
 - Footprint: 68mm x 18mm
 - B-mode Frequencies: 1.3~3.2, 1.9~4.6, 2.1~5.3, 2.3~5.7 [2.0, 3.5, 4.5, 5.0] MHz
 - Harmonic Frequencies: 5.0, 6.0 MHz
 - Doppler Frequencies: 2.5, 3.0 MHz
 - Biopsy Guide: NGB-022, multi angle, reusable
- ## 9.2 Linear
- 7L4B/7L4A (II)
 - Application: Abdomen, Pediatric, Small Parts, Musculoskeletal, Vascular
 - Bandwidth: 3.0~14.0 MHz
 - Number of Elements: 128
 - Field of View (max): 38 mm
 - L14-6NE
 - Steered Angle: +/-6° (B); +/-20°(C, PW)
 - Depth: 0.9 - 29.6 cm
 - Physical Footprint: 61 mm x 24.4 mm
 - Footprint: 45.7 mm x 10.9 mm
 - B-mode Frequencies: 3.0~9.2, 5.4~11.5, 6.2~13, 7.0~14.0 [5.5, 6.5, 7.5, 9.0] MHz
 - Harmonic Frequencies: 9.0, 10.0 MHz
 - Doppler Frequencies: 5.0, 5.7 MHz
 - Biopsy Guide: NGB-007, multi angle, reusable
 - L12-3E
 - Application: Musculoskeletal, nerve, small parts, vascular, pediatric, abdominal
 - Bandwidth: 4.4~13.5 MHz
 - Number of Elements: 192
 - Field of View (max): 38 mm
 - Steered Angle: +/-6° (B); +/-12°

- (C, PW)
 - Depth: 0.9-29.6 cm
 - Physical Footprint: 45.7 mm × 10.9 mm
 - Footprint: 44.2 mm × 8.5 mm
 - B-mode Frequencies: 4.4~9.6, 5.4~11.5, 6.0~12.6, 6.6~13.5 [5.0, 7.5, 8.5, 10.0] MHz
 - Harmonic Frequencies: 8.0, 10.0 MHz
 - Doppler Frequencies: 5.0, 5.7 MHz
 - Biopsy Guide: NGB-007, multi angle, reusable
- L7-3
 - Application: Small parts, vascular, pediatric, musculoskeletal, abdominal, cephalic, orthopedic
 - Bandwidth: 2.7-8.2 MHz
 - Number of Elements: 128
 - Field of View (max): 38mm
 - Steered Angle: +/-6° (B); +/-12° (C, PW)
 - Depth: 0.9-29.6 cm
 - Physical Footprint: 45.7mm × 10.9mm
 - Footprint: 43mm × 10mm
 - B-mode imaging Frequencies: 2.7~5.3, 3.2~6.4, 3.6~7.2, 3.8~8.2 [4.0, 5.0, 6.0, 7.0] MHz
 - Harmonic Frequencies: 6.0, 7.0 MHz
 - Doppler Frequencies: 3.8, 5.0 MHz
 - Biopsy Guide: NGB-007, multi angle, reusable
- L14-6
 - Application: Small parts, vascular, pediatric, musculoskeletal, abdominal, cephalic
 - Bandwidth: 4.8~16.0 MHz
 - Number of Elements: 128
 - Field of View (max): 25.3 mm
 - Steered Angle: +/-6° (B); +/-20°
- (C, PW)
 - Depth: 0.9-29.6 cm
 - Physical Footprint: 31.6mm×22.8mm
 - Footprint: 30mm× 8mm
 - B-mode Frequencies: 4.8~10.6, 6.0~12.6, 7.2~14.4, 8.0~16.0 [8.0, 10.0, 12.0, 14.0] MHz
 - Harmonic Frequencies: 12.0, 14.0MHz
 - Doppler Frequencies: 5.7, 6.6MHz
 - Biopsy Guide: NGB-016, multi angle, reusable
- 7L5
 - Application: Small parts, vascular, pediatric, musculoskeletal, abdominal, cephalic, orthopedic
 - Bandwidth: 3.0-14 MHz
 - Number of Elements: 128
 - Field of View (max): 52.6mm
 - Steered Angle: +/-6° (B); +/-10° (C, PW)
 - Depth: 0.9-29.6 cm
 - Physical Footprint: 59.1mm × 12mm
 - Footprint: 56mm × 10mm
 - B-mode imaging Frequencies: 3.0~9.2, 5.4~11.5, 6.2~13.0, 7.0~14.0 [5.0, 7.5, 8.5, 10.0] MHz
 - Harmonic Frequencies: 8.0, 10.0 MHz
 - Doppler Frequencies: 5.0, 5.7 MHz
 - Biopsy Guide: NGB-007, multi angle, reusable
- L13-3
 - Application: Musculoskeletal, nerve, small parts, vascular, pediatric, abdominal
 - Bandwidth: 3.0~14.0 MHz
 - Number of Elements: 128
 - Field of View (max): 38mm
 - Steered Angle: +/-6° (B); +/-20°

- (C, PW)
 - Depth: 0.9-29.6 cm
 - Physical Footprint: 61mm × 24.4 mm
 - Footprint: 44.2mm x 8.5mm
 - B-mode Frequencies: 3.0~9.2, 5.4~11.5, 6.2~13, 7.0~14.0 [5.5, 6.5, 7.5, 9.0] MHz
 - Harmonic Frequencies: 9.0, 10.0 MHz
 - Doppler Frequencies: 5.0, 6.2 MHz
 - Biopsy Guide: NGB-007, multi angle, reusable
- 6LB7
 - Application: Urology
 - Bandwidth: 2.6-13.2MHz
 - Number of Elements: 128
 - Field of View (max): 66mm (L); 152° (C)
 - Steered Angle: +/-6° (B); +/-6° (C, PW) (L)
 - Extended FOV: 172° (C)
 - Depth: 1.8~29.6 cm
 - Physical Footprint: 20.6mm x 20.6mm (L); 21.9mm x 21.9mm (C)
 - Footprint: 72mm x 11mm (L); 21.92mm x11.2mm (C)
 - B-mode Frequencies: 2.6~6.5, 3.2~7.9, 4.2~11.2, 5.2~13.2 [5.0, 6.5, 7.5, 8.5] MHz
 - Harmonic Frequencies: 8.0, 9.0 MHz
 - Doppler Frequencies: 4.0, 5.0 MHz (C); 4.4, 5.3 MHz (L)
 - Biopsy Guide: NGB-009, multi angle, reusable
- 9.3 Phased array**
 - P4-2
 - Application: Cardiac, abdominal, Pediatric, vascular
 - Bandwidth: 1.0~5.2MHz
 - Number of Elements: 64
 - Field of View (max): 90°
 - Depth: 2.8-31.4 cm
 - Physical Footprint: 25.2 mm × 20.6 mm
 - Footprint: 23.4 mm × 15.2 mm
 - B-mode Frequencies: 1.0~2.6, 1.3~3.2, 1.6~3.8, 2.2~5.2 [2.0, 2.5, 3.0, 4.0] MHz
 - Harmonic Frequencies: 3.4, 3.8 MHz
 - Doppler Frequencies: 2.0, 2.3 MHz; TDI 2.0, 2.3 MHz
 - CW Frequency: 2.0 MHz
 - Biopsy Guide: NGB-011, multi angle, reusable
- P7-3
 - Application: pediatric abdomen, pediatric cardiac, neonatal cephalic, neonatal abdomen, neonatal cardiac, nerve, orthopedic
 - Bandwidth: 2.1~8.2 MHz
 - Number of Elements: 96
 - Field of View (max): 90°
 - Depth: 2.8-27.7 cm
 - Physical Footprint: 34 mm ×24.5 mm
 - Footprint: 20.4 mm × 12.8 mm
 - B-mode Frequencies: 2.1~5.4, 2.8~6.4, 3.3~7.2, 3.8~8.2 [3.6, 5.0, 6.0, 7.0] MHz
 - Harmonic Frequencies: 6.0, 7.0 MHz
 - Doppler Frequencies: 3.3, 4.0 MHz; TDI 3.3, 4.0 MHz
 - CW Frequency: 3.3 MHz
 - Biopsy Guide: not available
- P10-4E
 - Application: Cardiac, abdominal, Pediatric, nerve
 - Bandwidth: 3.0-11.8 MHz
 - Number of Elements: 128
 - Field of View (max): 90°
 - Depth: 2.8~27.7 cm

- Physical Footprint: 15.1mm x 10.2mm
- Footprint: 15mm x 9.1mm
- B-mode Frequencies: 3.0~9.2, 3.6~10.2, 4.4~11.0, 5.0~11.8 [5.5, 6.5, 7.5, 8.5] MHz
- Harmonic Frequencies: 7.0, 8.0 MHz
- Doppler Frequencies: 5.0, 5.7 MHz; TDI 5.0, 5.7 MHz
- CW Frequency: 5.0 MHz
- Biopsy Guide: not available

9.4 Volume curved array

- D7-2E

- Application: OB/GYN, Abdomen
- Bandwidth: 2.0-8.4 MHz
- Number of Elements: 128
- FOV (max): 70°(B) × 70°(sweep)
- Extended FOV: 90°(B)
- Convex Radius: 40 mm
- Volume Sweep Radius: 21 mm
- Depth: 2.8~38.8 cm
- Physical Footprint: 74 mm × 49 mm
- Footprint: 49 mm × 14.15 mm
- B-mode Frequencies: 2.0~4.4, 3.6~6.4, 3.7~7.2, 4.8~8.4 [2.5, 4.0, 4.5, 6.0] MHz
- Harmonic Frequencies: 5.0, 6.0 MHz
- Doppler Frequencies: 2.5, 3.0 MHz
- Biopsy Guide: not available

- D7-2

- Application: Obstetrics, gynecology, abdominal
- Bandwidth: 2.0-8.4 MHz
- Number of Elements: 128
- FOV (max): 70°(B) × 70°(sweep)
- Extended FOV: 90°(B)
- Convex Radius: 40 mm
- Volume Sweep Radius: 21 mm
- Depth: 2.8~38.8 cm

- Physical Footprint: 74mm x49mm
- Footprint: 49mm x 14.15mm
- B-mode Frequencies: 2.0~4.4, 3.6~6.4, 3.7~7.2, 4.8~8.4 [2.5, 4.0, 4.5, 6.0] MHz
- Harmonic Frequencies: 5.0, 6.0 MHz
- Doppler Frequencies: 2.5, 3.0 MHz
- Biopsy Guide: not available

- DE11-3E

- Application: Gynecology, obstetrics, urology
- Bandwidth: 2.3-11.6 MHz
- Number of Elements: 128
- FOV (max): 149°(B) × 70°(sweep)
- Extended FOV: 169°(B)
- Convex Radius: 11 mm
- Volume Sweep Radius: 11.06 mm
- Depth: 1.8~29.6 cm
- Physical Footprint: 24.9mm x 21.8mm
- Footprint: 24mm x 9mm
- B-mode Frequencies: 2.3~5.8, 2.9~7.2, 3.2~7.9, 4.4~11.6 [5.0, 6.0, 6.5, 8.0] MHz
- Harmonic Frequencies: 8.0, 9.0 MHz
- Doppler Frequencies: 4.0, 5.0 MHz
- Biopsy Guide: NGB-027, multi-angle, reusable

- SD8-1E

- Application: Gynecology, obstetrics, abdominal
- Bandwidth: 2.0-8.2 MHz
- Number of Elements: 192
- FOV (max): 67°(B) × 70°(sweep)
- Extended FOV: 86°
- Convex Radius: 45mm
- Volume Sweep Radius: 24.1 mm
- Depth: 2.8~38.8 cm
- Physical Footprint: 75.7mm x 52.6mm

- Footprint: 54.5 mm x 14.9 mm
- B-mode Frequencies: 2.0~4.5, 2.6~4.8, 3.0~5.5, 3.8~8.2 [3.5, 3.7, 4, 5.5] MHz
- Harmonic Frequencies: 5.0, 6.0 MHz
- Doppler Frequencies: color: 3.5, 4 MHz; PW: 3.5, 3.8 MHz
- Biopsy Guide: NGB-039, multi-angle, reusable

9.5 Pencil

- CW5s
 - Application: Deep vascular, cardiac, transcranial
 - Number of Elements: 2
 - CW Frequency: 5.0 MHz
 - Biopsy Guide: not available

10 Peripheral Devices and

Accessories

10.1 Digital Color Video Printer

- SONY UP-D25MD

10.2 Graph/text printer

- HP Deskjet Ink Advantage 2020hc,
- HP Officejet Pro 8100

10.3 Analog Black and White Video Printer

- MITSUBISHI P93W-Z,
- SONY UP-X898MD

10.4 External DVR

10.5 Microphone

10.6 Gel warmer

- Easily removed from system for cleaning
 - Light indicator for temperature protecting
 - Switch: off, 37°C, 40°C
 - Dimension: 80mm (W) × 85 mm (D) × 150mm (H) (145mm in depth)
 - Weight: approx. 500g
- ### 10.7 Footswitch
- USB port: 971-SWNOM (2-pedal)
 - USB port: 971-SWNOM (3-pedal)
 - FS-81-SP-2 (1-pedal)

- Support User-definable functions (Freeze, Save, Print)

10.8 ECG

- 6-pin, AHA/IEC, for 3-lead wires
- ECG wave display: on/off
- Gain: 0-30
- Sweep speed: 1-6, 1/step

10.9 Barcode reader

- Laser barcode scanner
- Model: SYMBOL LS2208

10.10 Built-in Wireless adapter

- Encryption: WEP, WPA-PSK, WPA2-PSK
- Max transfer speed: 300Mbps
- Protocols: 802.11b: 11, 5.5, 2, 1 Mbps; 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps; 802.11n: up to 300 Mbps

10.11 Built-in Battery

- Replaceable and rechargeable lithium battery
- Full battery lasts more than 24h in standby mode
- Light indicator for standby mode
- Empty battery recharged to full in less than 4h
- Li-ion 14.8V 6600mAh LI23I002A
- 14.8V * 6.6Ah < 100Wh

11 System Inputs and

Outputs

11.1 Video/Audio input

- Microphone: 1 port
- Audio signal: 2 port

11.2 Video/Audio output

- S-Video out: 1 port, PAL/NTSC
- Video out: 2 port
- VGA out: 1 port
- DVI out: 1 port
- Audio out: 2 ports

11.3 Physio input

- Support ECG signal
- ECG: 1 port

11.4 Other input/output

- USB: 7 USB ports, including 1 dedicated USB port for printer
- Ethernet: 1 port
- Remote control: 2 port

Concerning Medical Devices. The number adjacent to the CE marking (0123) is the code of the EU-notified body that certified meeting the requirements of Annex II excluding (4). of the Directive.

12 Safety and Conformance

12.1 Quality standards

- ISO 9001
- ISO 13485

12.2 Design standards

- EN 60601-1 and IEC 60601-1
- EN 60601-1-2 and IEC 60601-1-2
- EN 60601-1-6 and IEC 60601-1-6
- EN 60601-2-37 and IEC 60601-2-37
- EN 62304 and IEC 62304
- EN 62366 and IEC 62366
- EN ISO 17664 and ISO 17664

12.3 CE declaration

This system is fully in conformance with the Council Directive 93/42/EEC

NOTICE:

Not all features or specifications described in this document may be available in all probes and/or modes. Mindray reserves the right to make changes in specifications and features shown herein, or discontinue the product at any time without notice or obligation. Contact Mindray Representative for the most current information.

**DC-33/DC-35/DC-36/DC-38/DC-39/
DC-40/DC-41/DC-42/DC-43/DC-44/
DC-45/DC-40S/DC-40 Pro/
DC-40 Exp/DC-40T**

Diagnostic Ultrasound System

Operator's Manual

[Basic Volume]

No.	Name	Function
<1>	Pencil probe port	Pencil probe port (reserved).
<2>	Mic In port 	Use for connecting microphone to record vocal comments (reserved)
<3>	Two USB ports 	Used for connecting USB devices.
<4>	ECG lead signal input port/external ECG signal input port	Connects to ECG leads, to directly obtain patient electrocardiosignal/used for connecting the signal output port of ECG monitor.

2.10 Control Panel



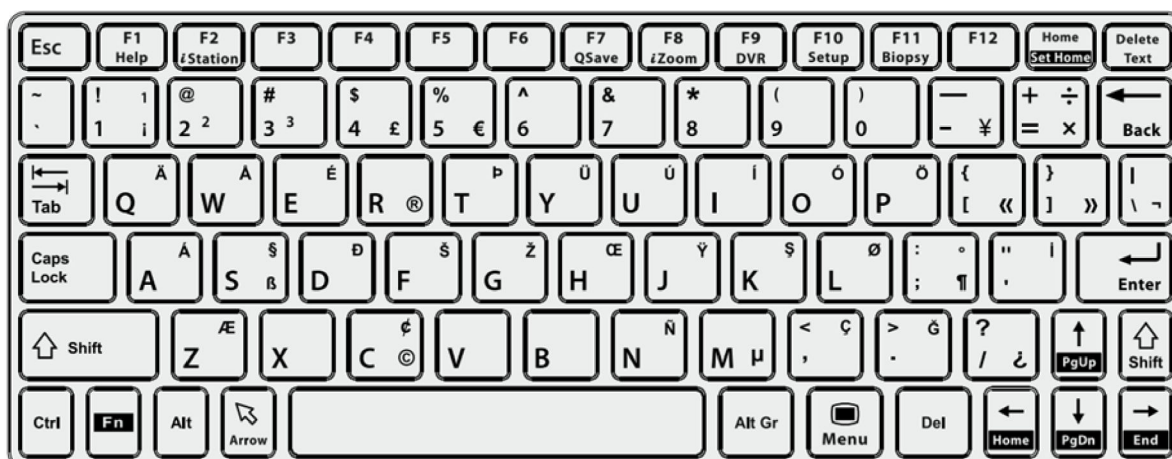
No.	English Name	Description
1.	/	Power button Press the button to turn on the system, the system enters the work status and the indicator becomes green.
2.	Volume	Adjust the volume.
3.	/	Adjust the corresponding functions on the touch screen.
	/	
	/	
	/	
	/	

No.	English Name	Description
4.	TGC	Slide to adjust the depth gain.
5.	Patient	Enter/exit Patient Info screen.
6.	Probe	Switch probe and exam mode.
7.	Review	Review the stored images.
8.	Report	Open/close the exam report.
9.	End Exam	End the current exam.
10.	Text	Enter/exit the textual comment status.
11.	Clear	Clear the comments or measurement caliper.
12.	Cine	Press to enter the Cine Review status from non-cine status when there is a multi-frame cine file playing.
13.	Body Mark	Enter/exit Body Mark.
14.	M	Press to enter M mode, and rotate to adjust M mode gain. While in 3D/4D mode, rotate the knob to make the 3D image to rotate around X-axis.
15.	CW	Enter CW mode.
16.	PW	Press to enter PW mode, and rotate to adjust PW or CW gain. While in 3D/4D mode, rotate the knob to make the 3D image rotate around Y-axis.
17.	Power	Enter Power mode.
18.	Color	Press to enter Color mode, and rotate to adjust Color or Power gain. While in 3D/4D mode, rotate the knob to make the 3D image rotate around Z-axis.
19.	Dual	Enter Dual mode in Non-Dual mode. Switch between the two display windows in the Dual mode.
20.	B	Press to enter B mode, and rotate to adjust B mode gain.
21.	Single	Enter single window in multiple window mode.
22.	4D	Press to enter 4D function and rotate to make the 3D image rotate.
23.	3D	Enter the 3D imaging function: Smart 3D or Static 3D.
24.	iTouch	Optimize the image.
25.	Angle/Steer	Adjust the angle. Adjust the steering of the probe.
26.	Measure	Enter/exit the application measurement mode.
27.	Update	Switching key: Press to change the currently active window. Start/stop image acquisition in iScape or 3D/4D mode.
28.	Caliper	Enter/exit the general measurement mode.
29.	Zoom	Rotate to enter the pan-zoom mode, and press to enter the spot-zoom mode.
30.	Quad	Enter Quad mode in Non-Quad mode. Switch between the four display windows in the Quad mode.

No.	English Name	Description
31.	Depth	Adjust the depth in real-time imaging.
32.	Focus	Change the focus position.
33.	Cursor	Show/hide the cursor.
34.	Set	Confirm an operation. The function is same with the left-button of the mouse.
35.	/	Move the trackball to change the cursor position.
36.	Set	Confirm an operation. The function is same with the left-button of the mouse.
37.	Freeze	Freeze/defreeze the image.
38.	Save	Save the image; user-defined key.
39.	P	User-defined keys, functions of which can be defined in preset.
40.	Print	Print: user-defined key.
41.		Battery status indicator. ■ Charging status: It illuminates in green when batteries are charged fully. ■ Discharging status: It illuminates in green color when the power of the batteries is more than 20%; It illuminates in orange color for low battery power.
		AC indicator The indicator is on at AC supply.
		Standby indicator. Standby: blinking in orange.
		Hard disk status indicator. The indicator blinks in green when hard disk is running.

NOTE: “/” means the key are undefined or have no silk print. For the undefined keys, you can customize them.

Keyboard



13 Troubleshooting of Regular Malfunctions

13.1 Troubleshooting When System Can't Be Powered on

13.1.1 Module or Board Related

No.	Descriptions	Remarks
1	Battery Li-ion 14.8V 6600mAh LI34I002A	
2	AC-DC board	
3	DC-DC board assembly	
4	CPU module	

13.1.2 Key Points Supporting Troubleshooting

No.	Key Points Supporting Troubleshooting	Remarks
1	AC power indicator	Located on control panel ~
2	Power-on status indicator	Backlight of the power button ☉/⦿
3	Three Power indicators	12V, 5V, 3.3V, located on IO board

13.1.3 Troubleshooting When System Can't Be Powered on

No.	Fault Description	Cause Analysis	Measure
1	Fail to start up when powered by the battery only, but can start up normally by AC power supply. After the machine is powered on, battery alarm appears.	Internal battery fails; Related board or module of the other power system is in normal status	Replace the battery
2	No AC input, Fail to start up when powered by the battery; The power-on status indicator flash then turn off, battery indicator flash, succeeding in start up when AC input and battery can charge up normally	Battery is out of power	Charge up

3	The AC input is normal, AC power indicator remains off; Power indicators on IO board: off	AC-DC board fails	Replace AC-DC board
4	AC power indicator: ON; Power-on status indicator: off after power button pressed Power indicators on IO board: off	DC-DC board fails	Replace DC-DC board assembly
5	AC power indicator: ON; Power-on status indicator: blinks after power button pressed Power indicators on IO board: off	CPU module fails	Replace CPU module
6	AC power indicator: ON; Power-on status indicator: blinks and turns on after pressing power button Power indicator on IO board: 5V off or 3.3V off	DC-DC board fails	Replace DC-DC board assembly

13.2 Troubleshooting When System cannot be started up

13.2.1 Module or Board Related

No.	Descriptions	Remarks
1	CPU module	
2	HDD	

13.2.2 Key Points Supporting Troubleshooting

No.	Key Points Supporting Troubleshooting	Remarks
1	Character and progress status during the starting of the system	
2	Alarm and prompts during the starting of the system	
3	Backlight status of control panel during power on the control panel	

13.2.3 Troubleshooting When System cannot be Started

No.	Fault Description	Cause Analysis	Measure
1	Control panel backlight normal; LCD blank displaying "No signal";	System powers on normally, enter BIOS self-checking but	Replace CPU module

	no output when connecting external display with VGA interface	BIOS screen cannot display. CPU module failure.	
2	BIOS start-up graphics is normally displayed, but it cannot be kept on	CPU module failure	Replace CPU module
3	Enters BIOS start-up graphics. No LINUX start-up graphics displayed, With the system prompts for abnormality (e.g. Installer can't find files, please check it and try again)	Cannot find operating system, the HDD or OS in HDD may be damaged.	First restore LINUX and Doppler, or else replace the hard disk.
4	LINUX start-up graphics displays; Graphics disappears to blank screen and system makes no response to control panel input.	Fail to load the operating system, the HDD or OS in HDD may be damaged.	First restore LINUX and Doppler, or else replace the hard disk.
5	LINUX start-up graphics displays; Blank screen with a cursor, can response to control panel input	Fail to load the Doppler software, the HDD or OS in HDD may be damaged.	First restore Doppler, or else replace the hard disk.
6	Doppler software start-up graphics displays but cannot continue	Fail to load the Doppler software, the HDD or Doppler software in HDD may be damaged.	First restore Doppler, or else replace the hard disk.
7	After being turned on or during in use, the monitor displays "GRUB loading please wait....."	The input device cannot be detected. Maybe the control panel defects or bad connection between the control panel and the host.	Confirm if the connection between control panel and the host is OK or replace the control panel.

13.3 Troubleshooting for Image Displaying

13.3.1 Module or Board Related

No.	Descriptions	Remarks
1	DC-DC board assembly	
2	Transmitting and receiving board PCBA	Transmitting and receiving physical channel are 64.

No.	Descriptions	Remarks
3	Probe board assembly	

13.3.2 Key Points Supporting Troubleshooting

No.	Key Points Supporting Troubleshooting	Remarks
1	Image features, including dark strips and noise	The following table shows the image features and the related description.
2	Image features when contact occurs between different types of probe connect to the same probe sockets.	
3	Imaging features when probe connect to different probe socket.	Maybe some probe switching relays are damaged.

13.3.3 Troubleshooting for Image Displaying

No.	Failure Description	Cause Analysis	Measure
1	No image echo in the ultrasonic image region, but probe can be recognized. (PHV_OP indicator is on).	PHV over current protects; Malfunction on the transmitting and receiving board, DC-DC board or probe board.	Malfunction probability on the transmitting and receiving board is bigger than that of DC-DC board PCBA. The third is probe board. Replace the related board to confirm the malfunction. (If the system cannot restore after being broken off the power and turned on, the malfunction is on TR board.)
2	Dark strips on B image	Probe malfunction, e.g. array damage. Confirm it by connecting another probe.	Replace the transducer.
		If several similar dark strips appear in the image.	Replace the transmitting and receiving board
		If dark strips appear, also after replacing the probe socket, dark strips disappear or change the place.	Replace the probe board assembly.
3	Noise on the B image	Probe malfunction, e.g. array damaged, lens with air bubbles or cable shielding damaged etc. Confirm it by connecting another probe.	Replace the probe.
		Other electrical equipment working in the same electrical network may cause interference to the system. e.g. Some ripple wave on the image.	Confirm the cause of failure by turning off all electrical equipment around working in the electrical network or connecting to the system. E.g. charger of electric bicycle, charger of MP3, timing

No.	Failure Description	Cause Analysis	Measure
			switch of fan, elevator, ultrasound work station, TV set. Etc.

13.4 Probe Socket System Related Malfunction Troubleshooting

13.4.1 Module or Board Related

No.	Descriptions	Remarks
1	Probe board assembly	
2	4D&TEE board	

13.4.2 Key Points Supporting Troubleshooting

No.	Key Points Supporting Troubleshooting	Remarks
1	Probe recognition of all models of probes when connecting on the same or different ports	
2	Probe board ID of the system information	

13.4.3 Probe Socket System Related Malfunction Troubleshooting

No.	Failure Description	Cause Analysis	Measure
1	Probe can't be recognized	This probe can't be recognized when connected to all probe sockets, while reorganization of other probes is normal. Probe malfunction.	Replace the transducer.
		This probe can't be recognized when connected to a certain socket. Probe board malfunction.	Replace the probe board assembly.
		No probe can be recognized on any probe port; Probe board ID can't be read correctly by the system information; Probe board malfunction.	Replace probe board assembly.