# Vetus E7 Ultra

# Veterinary Diagnostic Ultrasound System

## Specification




mindray
animal medical

# 1 System Overview

## 1.1 Application

- Abdomen
- Cardiology
- Reproduction
- Small Parts
- Musculoskeletal
- Vascular
- Ocular

## 1.2 Transducer types

- Curved array
- Linear array
- Phased array
- Intra-cavity

## 1.3 Features

- B-Mode
- THI and PSH (Phase Shift Harmonic Imaging)
- M-Mode/Color M-mode
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- Pulsed Wave Doppler
- iScape View (Panoramic Imaging)
- Free Xros M (Anatomical M-mode)
- Free Xros CM (Curved Anatomical M-mode)
- Tissue Doppler Imaging
- TDI QA
- Continuous Wave Doppler
- Contrast Imaging
- Contrast Imaging QA
- LVO
- VLMI Contrast
- Strain Elastography
- Stress Echo
- Tissue Tracking QA
- Smart 3D (Freehand 3D)
- DICOM
- Clinical Measurement Package
- AutoEF
- iWorks
- iNeedle (Needle Visualization)
- DVR Module
- RIMT
- Smart VTI
- Smart Bladder
- CPP
- iVocal Plus
- iBeam (Spatial Compound Imaging)
- iClear (Speckle Suppression Imaging)
- iTouch (Auto Image Optimization)
- Echo Boost
- Zoom/iZoom (Full Screen Zoom)
- FCI (Frequency Compound Imaging)
- B steer
- ExFOV (Extended Field of View)
- HR Flow (High Resolution Flow)
- Raw data processing
- iScanHelper
- 1 active probe port
- Hard drive: 256 GB SSD or 1TB SSD
- 4-USB
- HDMI
- iStorage
- GalleryDrop
- Send To Email (Only for CE region)
- Built-in Battery
- Power adapter
- Multilingual controls overlay

- u-Link (Only for CE region)
- Mobile Trolley
- ECG module
- Internal WiFi
- Dual-Probe extend module
- U-Bank (2 batteries or 4 batteries)
- Barcode reader
- Footswitch
- Monitor and touchscreen protective case

### 1.4 Language support

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

## 2 Physical Specification

### 2.1 Dimensions and weight

- Width: 364±5 mm
- Depth: 322±5 mm
- Height: 44±3 mm
- Weight:
  - About 3.0 kg (without battery)
  - About 3.5 kg (with battery)

### 2.2 Monitor

- 15.6-inch high resolution color LED monitor
- Resolution: 1920 x 1080
- Automatic brightness adjustment
- Screen Saver
- Open angle adjustable: 0 – 180°
- View angle (right/left): ⩾170°

### 2.3 Handle

### 2.4 Probe port

- 1 port connect to a transducer

### 2.5 Electrical power

- AC adapter Input
  - Voltage: 100 – 240V AC
  - Frequency: 50/60 Hz
  - Power input: 2.0 – 1.0A
- Battery
  Lithium-Ion Battery Pack 14.4V DC, 6600mAh (single battery)

### 2.6 Operating Environment

- Ambient temperature: 0 – 40 °C
- Relative humidity: 20% – 85% (no condensation)
- Atmospheric pressure: 700hPa – 1060hPa

### 2.7 Storage & Transportation Environment

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

# 3 User Interface

## 3.1 Control panel

- Power/Battery Indicator
- Function Keys
- Ergonomic Soft Key Operation
- Backlit keys, ensuring accurate work in the dark room
- Programmable keys, available for user-defined functions
- Key Brightness adjustment
- Integrated speakers, audio volume adjustment

## 3.2 Touch screen

- 12.3-inch high sensitivity anti-glare color touch screen
- Resolution: 1920 x 720
- Digital brightness and contrast adjustment through preset
- Viewing angle: ⩾170 degrees
- Support touch screen gestures
- Support either hand writing or with gloves on

## 3.3 System boot-up

- Boot-up from complete shut-down: about 33s
- Boot-up from standby mode: about 10s
- Shut down: about 24s

## 3.4 Comments

- Supports text input and arrow
- Adjustable text size and arrow size and direction
- Supports home position
- Covers various application
- More than 165 comments items for versatile application
- User customizable

## 3.5 Bodymark

More than 68 bodymarks for versatile application

## 3.6 Screen information* (presettable)

- Logo
- Hospital name
- Exam date
- Exam time
- Acoustic power
- Mechanical index
- Tissue thermal index
- ID, Name, Gender, Age
- Probe model
- ECG icon (when ECG connected)
- Operator
- TGC Curve
- Focus position
- Thumbnail
- Imaging parameters
- Help guidance
- Dynamic Trackpad indices

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

# 4 Imaging Parameters

## 4.1 Overview

- Digital beamformer
- Up to 1032192 channels
- 64-beam forming

## 4.2 B-mode

- Frame rate (max): 1471.0 f/s
- A.Power: depend on probe
- TGC: 8 sliders
- Depth: 30 Levels
- Gain: 0 – 100, 1/step

- FOV: on/off
- FOV Size: random adjustable
- FOV Position: random adjustable
- Needle Enhancement: on/off (convex and linear probe only)
- ZoneVue: on/off (L13-3Ns, L14-3Ws, L24-6Hs, P4-2s, P10-4s only)
- Image Quality: Pen/Gen/Res/HPen/HGen/HRes/HGen-FFR/HRes-FFR (depends on probes)
- Persistence: 0 – 7, 1/step
- Dyn Ra.: 30 – 180, 5/step
- Gray Map: 1 – 8, 1/step
- Tint Map: off, 1 – 8, 1/step
- ExFov: off, 1 – 2 (extended FOV, depends on probe)
- iClear: Off, 1 – 7, 1/step
- iBeam: Off,1 – 3,1/step
- Auto Merge: on/off (available on linear probes)
- Steer: 5 Levels (available on linear probes)
- Line Density: L, M, H, UH
- L/R Flip: on/off
- U/D Flip: on/off
- Rotation: 0, 90°, 180°, 270°
- iTouch: On/off
- iTouch: -12 – 12, 3db/step
- LGC: 8 point
- Dual Live: on/off
- H Scale: on/off
- Echo Boost: off, 1, 2 (available on phased probes for cardiac exams)
- Smooth: 0 – 6, 1/step
- TSI (Tissue Specific Imaging): General, Muscle, Fluid, Fat
- Zoom Value:
  - 0.8 – 1.4, 0.1/step
  - 1.4 – 2, 0.2/step
  - 2 – 4.5, 0.25/step
  - 4.5 – 9, 0.5/step
- HDScope: off, 1 – 3, 1/step
- iNeedle:
  - B/iNeedle (on/off)
  - Needle Dir.: Auto, Left, Right

## 4.3 THI and PSH

- Available on all types of probes
- Patent PSH technology, obtains purer harmonic, better contrast resolution, higher SNR, exceptional high frequency harmonic
- iClear available
- Image quality: depends on probes

## 4.4 M-mode

- A.Power: depend on probe
- Gain: 0 – 100, 1/step
- Depth: same as B
- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- Dynamic Range: 30 – 180, 5/step
- Gray Map: 1 – 8, 1/step
- Tint Map: Off, 1 – 8, 1/step
- Display format: V2:3, V3:2, H2:3, V3:1, FULL
- M Soften: 0 – 4, 1/step
- Edge Enhance: 0 – 3, 1/step

## 4.5 Free Xros M

- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- Tint Map: Off, 1 – 8, 1/step

- Display Format: V2:3, V3:2, H2:3, V3:1
- Color Free Xros M available
- Gra Map: 1 – 8, 1/step
- Angle: adjustable
- Display: Cur./All; show A/B/C On/Off

## 4.6 Free Xros CM

- Only available on TDI
- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- Tint Map: Off, 1 – 8, 1/step
- Display Format: V2:3, V3:2, H2:3, V3:1
- Gray Map: 1 – 8, 1/step
- Angle: adjustable
- Edit, Undo, Delete function for curved line

## 4.7 Color Doppler Imaging

- Frame rate (max): 258 f/s
- PRF: 0.1 kHz – 14.8 kHz
- Velocity: 1.0 cm/s – 226.5 cm/s
- HR Flow: High Resolution Flow provides better image quality and flow sensitivity
- A.power: same as B
- Gain: 0 – 100, 2/step
- Baseline: -8 – 8, 1/step
- Scale: 30 levels
- Quick Steer (available on linear probes)
- Steer (available on linear probes)
- ROI size/position: adjustable
- ROI Center Depth: adjustable
- Img Quality: 3 levels
  - Color： 3 levels
  - HRFlow: 1 level
- Persistence: 0 – 6, 1/step
- Smooth: 0 – 6, 1/step
- Color Map: V0 – V10; VV0 – VV9
- Flow State: L, M, H
- Priority: 0% – 100%, 1%/step
- WF: 8 Levels
- Line Density: L, M, H, UH
- Dual Live: on/off
- Smart Track: On/off
- Invert: on/off
- Auto Invert: on/off (available on linear probes)
- B/C Align: on/off
- Velocity tag: on/off
- Packet Size: 0 – 3, 1/step
- iTouch: On/off

## 4.8 Power Doppler Imaging

- HR Flow: High Resolution Flow provides better image quality and sensitivity
- A.power: same as B
- Gain: 0 – 100, 2/step
- Steer (available on linear probes)
- Scale: 30 steps
- ROI size/position: adjustable
- ROI Center Depth: adjustable
- Img Quality: Power/3 levels; HRFlow/1 level
- Steer (available on linear probes)
- Persistence: 0 – 6, 1/step
- Smooth: 0 – 6, 1/step
- Dynamic Range: 10 – 70, 5/step
- Flow State: L, M, H
- Color Map: P0 – P3; dP0 – dP3
- Priority: 0% – 100%, 1/step
- WF: 8 levels
- Line Density: L, M, H, UH
- Dual Live: on/off

- Invert: on/off
- B/C Align: same as Color
- Packet Size: 0 – 3, 1/step
- iTouch: On/off
- Smart Track: On/off
- Auto Invert: On/off

## 4.9 PW/CW-Mode

- PW velocity: 0.01 cm/s – 385.0 cm/s
- CW velocity: 0.01 cm/s – 1925.0 cm/s
- PW PRF: 0.7 kHz – 23.5 kHz
- CW PRF: 0.3 kHz – 133.3 kHz
- A.Power: same as B
- Gain: 0 – 100, 2/step
- Baseline: 9 levels
- Scale: 30 levels
- Audio: 0% – 100%, 2%/step
- Angle: -89 – 89, 1/step
- SVD: random adjustable
- Steer (available on linear probes)
- Img Quality: 3 levels
- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- SV: 0.5 – 30mm (PW only)
- SV position: random adjustable
- Dynamic range: 24 – 72, 2/step
- Gray map: 1 – 10, 1/step
- Tint Map: Off, 1 – 8, 1/step
- Display format: V2:3, V3:2, H2:3, V3:1, FULL
- Invert: On/off
- WF (depend on probe)
- Auto Invert: on/off (available on linear probes)
- Quick Angle: -60°, 0°, 60°
- Duplex/Triplex: On/off
- HPRF: On/off
- iTouch: On/off
- T/F Res: 0 – 6, 1/step
- Auto Calculate: On/off
- Auto Calc Cycle: 1 – 5, 1/step
- Trace Sensitivity: 0 – 5, 1/step
- Auto Calc Parameter
- Trace Smooth: off, 1 – 4, 1/step
- Trace Area: Above, Below, All
- Auto Calc Loop

## 4.10 Tissue Velocity/Energy Imaging

- Available on phased array probes
- Max frame rate: 1544 f/s
- PRF: 0.4 kHz – 14.3 kHz
- Velocity: 5.0 cm/s – 118.5 cm/s
- A.Power: same as B
- Gain: 0 – 100, 2/step
- Baseline: -8 – 8, 1/step (TVI only)
- Scale: 30 levels
- Img Quality: 2 levels
- Persistence: 0 – 6, 1/step
- Smooth: 0 – 6, 1/step
- Dyn Ra.: 10 – 70, 5/step (TEI only)
- Tissue State: L, M, H
- Color Map:
  - TVI: TVV1 – TVV10
  - TEI: P0 – P3, dP0 – dP3
- Priority: 0 – 100, 1%/step
- WF: 8 levels
- Line Density: L, M, H, UH
- Dual live: On/off
- Invert: On/off
- B/C Align: On/off
- Velocity tag: on/off (TVI only)
- Packet size: 0 – 3, 1/step

## 4.11 Tissue Velocity Doppler

- Available on phased array probes
- Velocity: 0.01 cm/s – 308.0 cm/s
- PRF: 0.7 kHz – 20 kHz
- A.power: same as B
- Gain: 0 – 100,2/step
- Baseline: 9 levels
- Scale: 30 levels
- Audio: 0 – 100%, 2%/step
- Angle: -89 – 89, 1/step
- SVD: random adjustable
- Img Quality: 2 levels
- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- SV size: same as PW
- Dyn Ra.: 24 – 72, 2/step
- Gray Map: 1 – 10, 1/step
- Tint map: Off, 1 – 8, 1/step
- Display Format: V2:3, V3:2, H2:3, V3:1, FULL
- Invert: On/off
- WF: 10 levels
- Quick Angle: -60°, 0, 60°
- Duplex/triplex: same as PW
- T/F Res: 0 – 6, 1/step
- iTouch: On/off

## 4.12 Tissue Velocity Motion

- A.power: same as B
- Smooth: 0 – 6, 1/step
- Velocity tag: on/off
- Persistence: 0 – 6, 1/step
- Img Quality: 2 levels
- Tissue State: L, M, H
- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- Display format: V2:3, V3:2, H2:3, V3:1, FULL
- Color Map: TVV1 – TVV10
- Packet Size: 0 – 3, 1/step
- Priority: 0% – 100%, 1%/step
- WF: 8 levels

## 4.13 Elastography

- Support strain ratio measurement
- Unique shell analysis function
- Stress compensation technology reduces deeper tissue artifacts, obtains more uniform stress throughout whole field
- Stress indicator: supports frame by frame stress indication
- Opacity: 0 – 5, 1/step
- Map: E1 – E6
- Smooth: 0 – 5, 1/step
- ROI: random adjustable
- ROI Center Depth: random adjustable
- Invert: on/off
- Depth: linear: 1.5 – 5cm
- Display Format: V1:1, H1:1, FULL
- Strain Scale: 0 – 5, 1/step
- Map Position: 0% – 100%, 5%/step
- Dyn Ra.: 0 – 5, 1/step
- Strain Mode: 0 – 1, 1/step
- E Sensitivity: 0 – 5, 1/step

## 4.14 UWN+ Contrast Imaging*

- Ultra Wideband Non-linear Plus contrast imaging technology, which provides exceptional contrast agent detecting capability, not only extracts second harmonic, but also non-linear fundamental signals
- Micro Flow Enhancement (MFE) available
- A.Power: same as B
- TGC: same as B
- Depth: same as B
- Gain: 0 – 100, 1/step
- Persistence: 0 – 7, 1/step
- Dyn Ra.: 30 – 180, 5/step
- Gray Map: 1 – 8, 1/step
- Tint Map: Off, 1 – 8, 1/step
- FOV: on/off
- FOV Size: random adjustable
- FOV Position: random adjustable
- iClear: Off, 1 – 7, 1/step
- Line Density: L, M, H, UH
- Dual Live: on/off
- Single: on/off
- iTouch: On/off
- iTouch: -8 – 8, 2db/levels
- Image Quality: 3 levels
- Mix:
  - Dual Live on: Contrast/C&T
  - Dual Live off: Contras/C&T/Tissue
- Mix Map: 0 – 6, 1/step
- Timer1: on/off
- Timer2: on/off
- Destruct: on/off
- Destruct Time: 500 – 2000, 75/step
- Destruct Power: -30 – 0, 0.3/step
- Max Frame Rate
- CEUSPos: Right, Left
- Pro Capture: on/off
- Retro Capture: on/off
- MFE: on/off
- MFE Period: 0.1s, 0.2s, 0.4s, 0.6s, 0.8s, 1.0s, MAX
- ExFov: off, 1 – 2, 1/step
- L/R Flip: on/off
- U/D Flip: on/off
- Rotation Counter-Clockwise: same as B
- Smooth: 0 – 6, 1/step
- LGC: 8 point

*The system is designed for compatibility with commercially available ultrasound contrast agents. Because the availability of these agents is subject to government regulation and approval, product features intended for use with these agents may not be commercially marketed nor made available before the contrast agent is cleared for use. Contrast related product features are enabled only on systems for delivery to an authorized country or region of use. Mindray Animal Medical makes no claims concerning the safety or effectiveness of contrast agents.

## 4.15 Stress Echo

- Available on cardiac sector probes
- 14 factory protocols
- User-defined protocols

- ECG triggered acquisition, display, selection, comparison, evaluation and archiving of multiple cardiac loops during various stages of a stress echo examination
- ASE16 (with score 4-7), ASE 17 (with score 4-7)
- Customized stages: up to 7 views per stage, and up to 12 stages per study
- View: standard views (PSLA, PSAX, A4C, A2C), and customized views
- Image acquisition
  - R-wave trigger
  - Acquire mode: Manual ROI or full screen
  - Ability to acquire frames or clips in B-mode, LVO
- Image selection
  Attach the images with view annotation label (PSLA, PSAX, A4C, A2C, and customized views)
- Review
  Automatically adjust to the number of images user defined
- Wall Motion Scoring
  - ASE 16 (with score 4-7), or ASE 17(with score 4-7)
  - Graphical display of scoring (Normal, Hyperkinetic, Severely Hyperkinetic, Akinetic, Dyskinetic)
- LV volume measurement
  Measurement of LV Volume in all phases of cardiac cycle
- Report
  Reporting for both Wall Motion Scoring

## 4.16 LVO

Dedicated left ventricle contrast imaging tool

## 4.17 iBeam

- Spatial compound imaging
- 3 angles maximum
- Available on convex and linear probes (except cardiac exams)

## 4.18 iTouch

- Auto image optimization
- B-mode: gain, TGC
- Color: gain
- Power: gain
- PW: gain, scale, PRF, WF
- Contrast imaging: gain, TGC

## 4.19 Echo Boost

- Available on cardiac phased probes
- Improve the homogeneity of cardiac images through the whole field of view
- Better contrast resolution of myocardium tissue layers
- Better noise control in cardiac chambers and muscles

## 4.20 B steer

- Only for linear probes

## 4.21 ExFov

- Extended field of view
- Available for all probes

## 4.22 iScape™ View

- Panoramic imaging
- Available on all probes
- Acquisition method: B mode, Power mode and Color mode
- Tint map: off; 8 types

- Rotation: 0° – 355°

## 4.23 Zoom

- Zoom: Spot zoom (write zoom) up to 9x, Pan zoom (read zoom) 0.8x – 9x
- iZoom: convertible 3 steps; normal image, zoom standard area, zoom only image area

## 4.24 QSave

- Quick save image parameter setting after image adjustment done
- Support Save, Create, Restore
- Support adding new animal species

## 4.25 Tissue Tracking QA

- Available on P4-2s/P8-3Ts/P8-2s/P10-4s
- Tissue tracking quantitative analysis
- Mandatory ECG connection before TT QA cine acquisition
- Six views for analysis: ALAX, A4C, A2C, PSAXB, PSAXM, PSAXAP
- Reload: reload cine again for new study
- Edit: modify trace points
- Start Tracking
- Display effect: 0/1; at 0, tracking in velocity vector arrow; at 1, tracking in dots
- Trace method: Auto, 3 point or manual for ALAX, A4C, A2C; manual for PSAXB, PSAXM, PSAXAP
- Bull's Eye: trace result in bull's eye model
- Torsion: Torsion rate curve display
- LGC: available
- Valve's open and close time index: MVC, MVC', AVC, AVO, MVO
- Data export: export data in CSV file
- Cycle: ECG triggered cardiac cycle recognition for analysis
- Auto play: stop, X1/10, X1/5, X1/4, X1/3, X1/2, X1, X2, X3
- Thickness: 1 – 30mm, 1mm/step; adjust trace thickness
- Track point: 20 – 40, 1/step
- Parameter: Volume, Speed, Displace., L Strain, L Strain R, T Strain, T Strain R, Area, R Strain, R Strain R, C Strain, C Strain R, Rotation, Rot. R
- Smooth: 0 – 4, 1/step

## 4.26 Smart 3D

- Acquisition preparation:
  - Render modes: Surface, Min, Max, X-ray
  - Acquisition Methods: Rocked, Linear
  - Reset VOI
  - Flip VOI
  - Angle: 10° – 80°
  - Distance: 10 – 200mm
  - Acquiring Time: 1.0s – 20.0s
- VR
  - Render modes: Surface, Min, Max, X-ray
  - Rotate: on/off
  - Ref. Image: switch VR or A/B/C plane
  - VR orientation: 0°, 90°, 180°, 270° for quick rotation

- Threshold: 0% – 100%
- Tint$^{VR}$: off; 1 – 8 types
- X Axis
- Y Axis
- Z Axis
- Display formats: Quad, Dual, Single, A4:1
- Reset

- Adv.
  - Dircetion: Up/Down, Left/Right, Front/Back, Down/Up, Right/Left, Back/Front
  - VOI: On/Off/Fixed
  - Inversion
  - Filp
  - Depth VR: Off, Black, Cyan, Blue, Rose
  - MgaiClean: Off, Low, Mid, Hight, Max
  - Move Light
  - Surf. ENH: 0 – 7
  - VR Refine: Off. 1 – 7
  - Zoom: 0.2 – 4.0, 0.2/step
  - Opacity: 0% – 100%, 5%/step
  - Smooth: 0 – 10, 1/step
  - Brightness$^{VR}$: 0% – 100%, 2%/step
  - Contrast$^{VR}$: 0% – 100%, 2%/step
  - QSave
  - iZoom
- MPR
  - Zoom: 0.2 – 4.0, 0.2/step
  - iZoom: Off, 2 levels
  - X Axis
  - Y Axis
  - Z Axis
  - iClear: Off, 1 – 7, 1/step
  - Brightness$^{MPR}$: 0% – 100%
  - Tint$^{MPR}$: Off, 1 – 8, 1/step
  - Gray Map: 1 – 8, 1/step
  - Contrast$^{MPR}$: 0% – 100%, 5%/step
  - Thickness: 0mm – 30mm, 1/step
  - QSave
- Cut
  - Contour
  - Undo
  - Undo All
  - Soft Eraser
  - X Axis
  - Y Axis
  - Z Axis
  - Display formats: Quad, Dual, Single, A4:1
- 3D Print
  - Mesh Quality: Low, Mid, High
  - Generate Mesh
  - File Format: .stl, .obj, .ply, .3mf, .off
  - Save mesh to USB
  - Threshold: 0% – 100%, 1%/step
  - Smooth: 0 – 10, 1/step
- TGC

## 4.27 iNeedle

- Available Probe: L13-3s, C5-1s, L12-4s, L20-5s, L13-3Ns, L14-6s, L14-3Ws, L24-6Hs
- Needle visualization enhancement
- Best angle indicator
- Available on linear and curved probes

## 4.28 AutoEF

- Available Probe: P4-2s, P8-3Ts, P8-2s, P10-4s
- Adjust Frame
- Diastole FR
- Systole FR
- Volume curve: on/off
- Adjustment for the border of endocardium

## 4.29 Smart Track

- Continuously track the flow and detect the best color box position and angle in real time scanning.
- The linear probes L13-3Ns, L12-4s, L13-3s, L14-6s in Vascular exam mode support the Smart Track function.

## 4.30 RIMT (RF-Data based IMT)

- Available in single/dual B carotid exam mode
- Side: left/right
- Calculation of 6 RIMT values, RIMT average value, SD and ROI W
- Report operation:
  - Data deleting
  - RIMT trend graphic viewing
  - Preview

## 4.31 Smart VTI

- Function Description
  It is used to automatically track and trace the PW spectrum of LVOT, and obtain VTI, SV, CO and SVV, for rapid assessment of volume responsiveness.
- Imaging parameters
  - Trend Curve: On/Off
  - Edit VTI
  - LVOT Diameter
  - Save VTI
  - Trace sensitivity: -3 – 3, 1/step
  - Cycle: 1 – 5, 1/step
- Quantitative Analysis Parameters
  - LVOT Vmax, LVOT VTI
  - LVOT HR, LVOT SV, LVOT CO
  - SVV

## 4.32 Smart Bladder

- Available probe: C5-1s, C6-2Gs, C11-3s, C13-3s, mSC6-1s
- Automatically detect and calculate bladder volume

## 4.33 CPP

Measures the pixel proportion of blood flow signal in the region of interest

## 4.34 iScanHelper

- Tutorial function as a guidance to show basic scanning skill with graphic of probe position, schematic of anatomy and example clinical image
- Support broadcasting the scanning skills

# 5 Cine Review and Post Processing

## 5.1 Cine review

- Available in all modes
- Frame by frame manual cineloop review or auto playback with variable speed

- Independent cine review in 2D Dual and Quad mode one by one
- Support presetting manual cine playback speed
- Maximum cine memory is up to 168453 frames (depend on the mode)
- Retrospective storage (online setting available, 1 – 120 s, or 1 – 120 cycles, pre-settable) and prospective storage (1 – 480 s, or 1 – 390 cycles, pre-settable)
- Frame compare: compare different frames for one cine in dual format
- Cine compare: compare two or more than two cines in dual or quad format
- Jump to first and jump to last: one keystroke review the first or last frame
- Start point and end point: selectable

## 5.2 Raw data processing

### 5.2.1 B-mode

- TGC
- Gain
- Dynamic range
- Gray map
- Tint map
- iClear
- L/R Flip
- U/D Flip
- Rotation
- LGC
- Dual Live
- Auto Merge
- H Scale
- Echo Boost
- Smooth
- Zoom Value

### 5.2.2 M-mode

- Gain
- Speed
- Dynamic Range
- Gray Map
- Tint Map
- Display format
- Edge Enhance

### 5.2.3 Color

- Gain
- Baseline
- Smooth
- Color map
- Dual Live
- Invert
- Priority
- Velocity tag

### 5.2.4 PW

- Gain
- Baseline
- Audio
- Angle
- Speed
- Dynamic range
- Gray map
- Tint Map
- Display format
- Invert
- WF
- Quick Angle
- T/F Res

# 6 Measurement/Analysis and Report

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

## 6.1 Generic measurements

### 6.1.1 B-Mode

- Distance
- Ellipse
- Trace
- Spline
- Cross
- Angle (2 Lines)
- Angle (3 Points)
- Double Dist
- Trace Len
- Trace Len(Spline)
- Parallel
- Distance P-L
- IMT
- B-Profile
- B-Hist(Ellipse)
- B-Hist(Trace)
- B-Hist(Spline)
- B-Hist(Rectangle)
- Depth
- Color Vel
- Strain Hist
- Elas. Hist
- Color Vel Profile
- Elas.
- Strain
- Smart Trace
- Color Pixel Percent(Ellipse)
- Color Pixel Percent(Trace)
- Color Pixel Percent(Rectangle)
- Color Pixel Percent(Recall)
- ----------
- Volume
- Volume(Ellipse)
- Volume(E+Dist.)
- Ratio(D)
- B Ratio
- ----------
- Volume
- Volume
- Volume(Ellipse)
- Volume(E+Dist.)
- Ratio(A)
- Area1
- Area2
- Directional R
- D1
- D2
- RAC
- Sag
- XS
- Volume Flow
- Vas Area
- TAMEAN
- TAMAX
- Elas. Ratio
- A
- B
- Strain Ratio
- A
- B

### 6.1.2 M-Mode

- HR
- HR(R-R)
- Slope
- Distance
- Time
- Velocity

### 6.1.3 D-Mode

- PS/ED
- Vel
- HR
- HR(R-R)
- Time
- Acceleration
- D Trace
- ----------
- Ratio(Vel)
- Ratio(VTI)

- ----------
- Volume Flow
- Vas Area
- TAMEAN
- TAMAX

### 6.1.4 AutoCalc

- 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

## 6.2 Clinical option measurement package

### 6.2.1 Abdomen

**B-Mode**

- Shunt Diam
- Portal V Diam
- Splenic V Diam
- PS Conflnc Diam
- Renal V Diam
- CrMV Diam
- CaMV Diam
- GB L
- GB H
- GB W
- GB wall th
- Cystic Duct
- CBD
- Panc duct
- Panc body
- Pylorus
- Pylorus Wall
- Renal L
- Renal H
- Renal W
- Cortex
- Adrenal L
- Adrenal H
- Adrenal W
- Ureter
- Spleen H
- Hepatic Lesion1 Elas.
- Hepatic Lesion2 Elas.
- Hepatic Lesion3 Elas.
- Hep. Lesion1 Strain
- Hep. Lesion2 Strain
- Hep. Lesion3 Strain
- LSM
- Spleen Lesion1 Strain
- Spleen Lesion2 Strain
- Spleen Lesion3 Strain
- Renal Lesion1 Strain
- Renal Lesion2 Strain
- Renal Lesion3 Strain
- Panc Lesion1 Strain
- Panc Lesion2 Strain
- Panc Lesion3 Strain
- B.Mass1 Strain
- B.Mass2 Strain
- B.Mass3 Strain
- B.Mass4 Strain
- B.Mass5 Strain
- B.Mass6 Strain
- B.Mass7 Strain

- B.Mass8 Strain
- B.Mass9 Strain
- B.Mass10 Strain
- Smart Bladder Dual
- BL Length
- BL Height
- BL Width
- Free Fluid
- Bladder T1
- Bladder T2
- Bladder T3
- RenalPelvis W
- LtPancreas T
- RtPancreas T
- GastricWall T
- Pylorus T
- IntestineWall T
- DuodenalWall T
- JejunalWall T
- IleumWall T
- ColonWall T
- Aorta Diam
- Prostate L
- Prostate H
- Prostate W
- ----------
- Renal Vol
- BL Vol
- PV/Ao
- ----------
- Aorta
  - Outer Diameter
  - Inner Diameter
  - Outer Area
  - Inner Area
- Celiac Axis
  - Anterior-Posterior
  - Transverse
- CrMA
  - Anterior-Posterior
  - Transverse
- Hepatic A
  - Anterior-Posterior
  - Transverse
- Splenic A
  - Anterior-Posterior
  - Transverse
- GDA
  - Anterior-Posterior
  - Transverse
- CaMA
  - Anterior-Posterior
  - Transverse
- ABD Stenosis 1(2D)
  - Outer Diameter
  - Inner Diameter
  - Outer Area
  - Inner Area
- ABD Stenosis 2(2D)
  - Outer Diameter
  - Inner Diameter
  - Outer Area
  - Inner Area
- ABD Stenosis 3(2D)
  - Outer Diameter
  - Inner Diameter
  - Outer Area
  - Inner Area
- ABD Stenosis 4(2D)
  - Outer Diameter
  - Inner Diameter
  - Outer Area
  - Inner Area
- CaVC
  - Anterior-Posterior
  - Transverse
  - Checklist
- Hepatic V(2D)
  - Anterior-Posterior
  - Transverse

- Lt Hepatic V(2D)
- Anterior-Posterior
- Transverse
- M Hepatic V(2D)
- Anterior-Posterior
- Transverse
- Rt Hepatic V(2D)
- Anterior-Posterior
- Transverse
- Hepatic Lesion 1
- d1
- d2
- d3
- Hepatic Lesion 2
- d1
- d2
- d3
- Hepatic Lesion 3
- d1
- d2
- d3
- Hepatic Cyst 1
- d1
- d2
- d3
- Hepatic Cyst 2
- d1
- d2
- d3
- Hepatic Cyst 3
- d1
- d2
- d3
- GB
- GB L
- GB H
- GB W
- GB wall th
- GB Finding 1
- d1
- d2
- d3
- GB Finding 2
- d1
- d2
- d3
- GB Finding 3
- d1
- d2
- d3
- GB Finding 4
- d1
- d2
- d3
- GB Finding 5
- d1
- d2
- d3
- Panc Finding 1
- d1
- d2
- d3
- Panc Finding 2
- d1
- d2
- d3
- Panc Finding 3
- d1
- d2
- d3
- Panc Finding 4
- d1
- d2
- d3
- Panc Finding 5
- d1
- d2
- d3
- Kidney
- Renal L

- Renal H
- Renal W
- Cortex
- Adrenal
- Adrenal L
- Adrenal H
- Adrenal W
- Renal Lesion 1
- d1
- d2
- d3
- Renal Lesion 2
- d1
- d2
- d3
- Renal Lesion 3
- d1
- d2
- d3
- Renal Cyst 1
- d1
- d2
- d3
- Renal Cyst 2
- d1
- d2
- d3
- Renal Cyst 3
- d1
- d2
- d3
- Renal A
- Long
- Anterior-Posterior
- Transverse
- Hepatic Lesion1 ElasRatio
- A
- B
- Hepatic Lesion2 ElasRatio
- A
- B
- Hepatic Lesion3 ElasRatio
- A
- B
- Hep. Lesion1 StrRatio
- A
- B
- Hep. Lesion2 StrRatio
- A
- B
- Hep. Lesion3 StrRatio
- A
- B
- Spleen Lesion1 StrRatio
- A
- B
- Spleen Lesion2 StrRatio
- A
- B
- Spleen Lesion3 StrRatio
- A
- B
- Renal Lesion1 StrRatio
- A
- B
- Renal Lesion2 StrRatio
- A
- B
- Renal Lesion3 StrRatio
- A
- B
- Panc Lesion1 StrRatio
- A
- B
- Panc Lesion2 StrRatio
- A
- B
- Panc Lesion3 StrRatio
- A
- B

- B.Mass1 StrRatio
- A
- B
- B.Mass2 StrRatio
- A
- B
- B.Mass3 StrRatio
- A
- B
- B.Mass4 StrRatio
- A
- B
- B.Mass5 StrRatio
- A
- B
- B.Mass6 StrRatio
- A
- B
- B.Mass7 StrRatio
- A
- B
- B.Mass8 StrRatio
- A
- B
- B.Mass9 StrRatio
- A
- B
- B.Mass10 StrRatio
- A
- B
- Bladder
- BL Length
- BL Height
- BL Width
- Smart Bladder
- XS Bladder
- Sag Bladder
- Prostate
- Prostate L
- Prostate H
- Prostate W

**D-Mode**

- Aorta
- CrMA
- Hepatic A
- Splenic A
- GDA
- CaMA
- CaVC
- Hepatic V
- Lt Hepatic V
- M Hepatic V
- Rt Hepatic V
- Portal V
- M Portal V
- Splenic V
- Renal V
- CrMV
- CaMV
- Renal A
- Interlobar A
- Arcuate A
- Segment A
- ----------
- SMA/Ao
- ----------
- ABD Stenosis 1
- Pre Sten
- Sten
- Post Sten
- ABD Stenosis 2
- Pre Sten
- Sten
- Post Sten
- ABD Stenosis 3
- Pre Sten
- Sten
- Post Sten
- ABD Stenosis 4

- Pre Sten
- Sten
- Post Sten

### 6.2.2 Cardiology

**B-Mode**

-
- RVAWd(2D)
- RVAWs(2D)
- RVDd(2D)
- RVDs(2D)
- IVSd(2D)
- IVSs(2D)
- LVIDd(2D)
- LVIDs(2D)
- LVPWd(2D)
- LVPWs(2D)
- Diastole(2D)
- Systole(2D)
- LVLd apical
- LVLs apical
- LVAd apical
- LVAs apical
- LVAd sax MV
- LVAs sax MV
- LVAd sax Endo
- LVAd sax Epi
- LV Major
- LV Minor
- LV Area(d)
- LV Area(s)
- HR(2D)
- RA Major
- RA Minor
- RA Area
- RA Vol(A4C)
- RAP
- RV Area(d)
- RV Area(s)
- RV Major
- RV Minor
- LA Diam(2D)
- LA Major
- LA Minor
- LA Area
- LVOT Diam
- Ao Diam(2D)
- ACS(2D)
- AV Diam
- Ao Isthmus(2D)
- Ao Sinus Diam(2D)
- Ao st junct(2D)
- AVA
- Ao Arch Diam(2D)
- Ao Asc Diam(2D)
- Ao Desc Diam(2D)
- Duct Art Diam
- Post Ductal
- Pre Ductal
- MCS(2D)
- MV Diam
- MV EPSS(2D)
- MVA
- TV Diam
- TVA
- PV Diam
- RVOT Diam
- MPA Diam(2D)
- RPA Diam(2D)
- LPA Diam(2D)
- CaVC Diam(Expir)
- CaVC Diam(Insp)
- CrVC Diam(Expir)
- CrVC Diam(Insp)
- LCA Diam
- RCA Diam
- PEd(2D)
- PEs(2D)
- VSD Diam
- ASD Diam

- PDA Diam
- PFO Diam
- AutoEF
- MV T
- RPADd
- RPADs
- ----------
- LA/Ao(2D)
- MPA/Ao(2D)
- LV SI(2D)
- ----------
- LV(easy)(2D)
- LVIDd(2D)
- LVIDs(2D)
- HR(2D)
- LV(2D)
- Diastole(2D)
- Systole(2D)
- IVSd(2D)
- LVIDd(2D)
- LVPWd(2D)
- IVSs(2D)
- LVIDs(2D)
- LVPWs(2D)
- HR(2D)
- LA Simpson
- LA A4Cd
- LA A4Cs
- LA A2Cd
- LA A2Cs
- HR(2D)
- RA Simpson
- RA A4Cd
- RA A4Cs
- RA A2Cd
- RA A2Cs
- HR(2D)
- LV Simpson
- LV A4Cd
- LV A4Cs
- LV A2Cd
- LV A2Cs
- HR(2D)
- Mod.Simpson
- LVLd apical
- LVLs apical
- LVAd sax MV
- LVAs sax MV
- LVAd sax PM
- LVAs sax PM
- HR(2D)
- S-P Ellipse
- LVLd apical
- LVAd apical
- LVLs apical
- LVAs apical
- HR(2D)
- B-P Ellipse
- LVIDd(2D)
- LVAd sax MV
- LVIDs(2D)
- LVAs sax MV
- LVAd apical
- LVAs apical
- HR(2D)
- Bullet
- LVLd apical
- LVLs apical
- LVAd sax MV
- LVAs sax MV
- HR(2D)
- LV Mass(Cube-2D)
- IVSd(2D)
- LVIDd(2D)
- LVPWd(2D)
- LV Mass(A-L)
- LVLd apical
- LVAd sax Epi
- LVAd sax Endo
- LV Mass(T-E)

- LVAd sax Epi
- LVAd sax Endo
- a
- d
- LA Vol(Simp)
- LA Vol(A2C)
- LA Vol(A4C)
- LA Vol(A-L)
- LA apical
- LAA(A2C)
- LAA(A4C)
- MVA(VTI)
- LVOT Diam
- LVOT VTI
- MV VTI
- AVA(VTI)
- LVOT Diam
- LVOT VTI
- AV VTI
- CO(LVOT)
- LVOT Diam
- LVOT VTI
- AV HR
- CO(RVOT)
- RVOT Diam
- RVOT VTI
- PV HR
- CO(MV)
- MV Diam
- MV VTI
- MV HR
- CO(TV)
- TV Diam
- TV VTI
- TV HR
- PISA MR
- MR Rad
- MR Als Vel
- MR VTI
- 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
- Qp/Qs
- LVOT Diam
- LVOT VTI
- RVOT Diam
- RVOT VTI

**M-Mode**

- RVAWd(M)
- RVAWs(M)
- RVDd(M)
- RVDs(M)
- Ao Arch Diam(M)
- Ao Asc Diam(M)
- Ao Desc Diam(M)
- Ao Diam(M)
- Ao Isthmus(M)
- Ao Sinus Diam(M)
- Ao st junct(M)
- ACS(M)
- HR(M)
- IVSd(M)
- IVSs(M)
- LA Diam(M)
- LPA Diam(M)
- Diastole(M)
- Systole(M)
- LVET(M)
- LVIDd(M)
- LVIDs(M)

- LVOT Diam
- LVPEP(M)
- LVPWd(M)
- LVPWs(M)
- MCS(M)
- MPA Diam(M)
- MV A Amp
- MV E Amp
- MV D-E Slope
- MV D-E Amp
- MV E-F Slope
- MV EPSS(M)
- PEd(M)
- PEs(M)
- RPA Diam(M)
- RVET(M)
- RVOT Diam
- RVPEP(M)
- MAPSE
- TAPSE
- MV ALL
- CaVC Diam(Insp)(M)
- CaVC Diam(Expir)(M)
- CrVC Diam(Insp)(M)
- CrVC Diam(Expir)(M)
- Vp
- RPADd(M)
- RPADs(M)
- ----------
- LA/Ao(M)
- MPA/Ao(M)
- ----------
- LV(easy)(M)
- LVIDd(M)
- LVIDs(M)
- HR(M)
- LV(M)
- Diastole(M)
- Systole(M)
- IVSd(M)
- LVIDd(M)
- LVPWd(M)
- IVSs(M)
- LVIDs(M)
- LVPWs(M)
- HR(M)
- LV Mass(Cube-M)
- IVSd(M)
- LVIDd(M)
- LVPWd(M)
- LV Tei Index(M)
- MV C-O dur(M)
- LVET(M)

**D-Mode**

- MV A'(lateral)
- MV A'(medial)
- AAo Vmax
- AV VTI
- AV HR
- AV Vmax
- AR DecT
- AR Time
- AR PHT
- AR Ved
- AR Vmax
- AR VTI
- MV ARa(lateral)
- MV ARa(medial)
- ASD Vmax
- AV AccT
- AV DecT
- Coarc Post-Duct
- Coarc Pre-Duct
- DAo Vmax
- MV DRa(lateral)
- MV DRa(medial)
- MV E'(lateral)
- MV E'(medial)
- CaVC Vel(Expir)

- CaVC Vel(Insp)
- IVCT
- IVCT(LM)
- IVCT(RM)
- LPA Vmax
- LVET(Doppler)
- LVOT AccT
- LVOT VTI
- LVOT Vmax
- LVPEP(Doppler)
- MPA Vmax
- dP/dt
- -dP/dt
- Tau(BAI)
- MR VTI
- MR Vmax
- MS Vmax
- MV A Dur
- MV A Vel
- MV A VTI
- MV AccT
- MV DecT
- MV E Dur
- MV E Vel
- MV E VTI
- IVRT
- IVRT(LM)
- IVRT(RM)
- MV VTI
- MV HR
- MV Vmax
- PVein A Dur
- PVein A Vel
- PVein D Vel
- PVein D VTI
- PVein DecT
- PVein S Vel
- PVein S VTI
- PDA Vel(d)
- PDA Vel(s)
- PR PHT
- PR VTI
- PR Ved
- PR Vmax
- PR DecT
- PV AccT
- PV DecT
- PV VTI
- PV HR
- PV Vmax
- RAP
- RPA Vmax
- RVET(Doppler)
- RVOT Vmax
- RVOT VTI
- RVPEP(Doppler)
- MV S'(lateral)
- MV S'(medial)
- CrVC Vel(Expir)
- CrVC Vel(Insp)
- TR VTI
- TR Vmax
- TV A Dur
- TV A Vel
- TV AccT
- TV DecT
- TV E Vel
- TV E Dur
- TV VTI
- TV HR
- TV Vmax
- VSD Vmax
- Hepatic V S Vel
- Hepatic V D Vel
- TV a'(lateral)
- TV a'(medial)
- TV e'(lateral)
- TV e'(medial)
- TV s'(lateral)
- TV s'(medial)

- E'(basal)
- A'(basal)
- S'(basal)
- E'(apical)
- A'(apical)
- S'(apical)
- E'(annular)
- A'(annular)
- S'(annular)
- E'(endo)
- A'(endo)
- S'(endo)
- E'(epi)
- A'(epi)
- S'(epi)
- ----------
- MV E/A
- MVA(PHT)
- TV E/A
- TVA(PHT)
- ----------
- MV TDI
- MV A'(lateral)
- MV A'(medial)
- MV E'(lateral)
- MV E'(medial)
- MV S'(lateral)
- MV S'(medial)
- LV Tei Index(Doppler)
- MV C-O dur(Doppler)
- LVET(Doppler)
- RVSP
- TR Vmax
- RAP
- PAEDP
- PR Ved
- RAP
- MVA(VTI)
- LVOT Diam
- LVOT VTI
- MV VTI
- AVA(VTI)
- LVOT Diam
- LVOT VTI
- AV VTI
- CO(LVOT)
- LVOT Diam
- LVOT VTI
- AV HR
- CO(RVOT)
- RVOT Diam
- RVOT VTI
- PV HR
- CO(MV)
- MV Diam
- MV VTI
- MV HR
- CO(TV)
- TV Diam
- TV VTI
- TV HR
- RV Tei Index
- TV C-O dur
- RVET(Doppler)
- PISA MR
- MR Rad
- MR Als Vel
- MR VTI
- 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

- Qp/Qs
- LVOT Diam
- LVOT VTI
- RVOT Diam
- RVOT VTI
- TV TDI
- TV a'(lateral)
- TV a'(medial)
- TV e'(lateral)
- TV e'(medial)
- TV s'(lateral)
- TV s'(medial)
- Longitudinal Motion
- E'(basal)
- A'(basal)
- S'(basal)
- E'(apical)
- A'(apical)
- S'(apical)
- E'(annular)
- A'(annular)
- S'(annular)
- IVCT(LM)
- IVRT(LM)
- Radial Motion
- E'(endo)
- A'(endo)
- S'(endo)
- E'(epi)
- A'(epi)
- S'(epi)
- IVCT(RM)
- IVRT(RM)

### 6.2.3 Small Parts

**B-Mode**

- Thyroid L
- Thyroid H
- Thyroid W
- THY Mass1 Strain
- THY Mass2 Strain
- THY Mass3 Strain
- THY Mass1 Elas.
- THY Mass2 Elas.
- THY Mass3 Elas.
- THY Nodule1 Strain
- THY Nodule2 Strain
- THY Nodule3 Strain
- THY.Nodule1 Elas
- THY.Nodule2 Elas
- THY.Nodule3 Elas
- B.Mass1 Strain
- Breast Mass1 Elas.
- B.Mass2 Strain
- Breast Mass2 Elas.
- B.Mass3 Strain
- Breast Mass3 Elas.
- B.Mass4 Strain
- Breast Mass4 Elas.
- B.Mass5 Strain
- Breast Mass5 Elas.
- B.Mass6 Strain
- Breast Mass6 Elas.
- B.Mass7 Strain
- Breast Mass7 Elas.
- B.Mass8 Strain
- Breast Mass8 Elas.
- B.Mass9 Strain
- Breast Mass9 Elas.
- B.Mass10 Strain
- Breast Mass10 Elas.
- Testis L
- Testis H
- Testis W
- Epididymis L
- Epididymis H
- Epididymis W
- Scrotal Wall
- Testis V(2D)
- AdrenalTip T

- AdrenalTail T
- LymphNode L
- LymphNode W
- ----------
- Parathyroid 1
- L
- H
- W
- Parathyroid 2
- L
- H
- W
- Parotid
- L
- H
- W
- Lymph Node 1
- L
- H
- W
- Lymph Node 2
- L
- H
- W
- Lymph Node 3
- L
- H
- W
- Lymph Node 4
- L
- H
- W
- Lymph Node 5
- L
- H
- W
- Lymph Node 6
- L
- H
- W
- Thyroid
- Thyroid L
- Thyroid H
- Thyroid W
- Thyroid Mass 1
- d1
- d2
- d3
- Thyroid Mass 2
- d1
- d2
- d3
- Thyroid Mass 3
- d1
- d2
- d3
- Thyroid Nodule 1
- d1
- d2
- d3
- Thyroid Nodule 2
- d1
- d2
- d3
- Thyroid Nodule 3
- d1
- d2
- d3
- Thyroid Cyst 1
- d1
- d2
- d3
- Thyroid Cyst 2
- d1
- d2
- d3
- Thyroid Cyst 3
- d1
- d2
- d3

- Isthmus Finding 1
  - d1
  - d2
  - d3
- Isthmus Finding 2
  - d1
  - d2
  - d3
- Isthmus Finding 3
  - d1
  - d2
  - d3
- THY Mass1 Strain Ratio
  - A
  - B
- THY Mass2 Strain Ratio
  - A
  - B
- THY Mass3 Strain Ratio
  - A
  - B
- THY Mass1 Elas. Ratio
  - A
  - B
- THY Mass2 Elas. Ratio
  - A
  - B
- THY Mass3 Elas. Ratio
  - A
  - B
- THY Nodule1 Strain Ratio
  - A
  - B
- THY Nodule2 Strain Ratio
  - A
  - B
- THY Nodule3 Strain Ratio
  - A
  - B
- THY.Nodule1 Elas Ratio
  - A
  - B
- THY.Nodule2 Elas Ratio
  - A
  - B
- THY.Nodule3 Elas Ratio
  - A
  - B
- Breast Mass 1
  - L
  - H
  - W
  - Nip. Dist.
  - Skin Dist.
- Breast Mass 2
  - L
  - H
  - W
  - Nip. Dist.
  - Skin Dist.
- Breast Mass 3
  - L
  - H
  - W
  - Nip. Dist.
  - Skin Dist.
- Breast Mass 4
  - L
  - H
  - W
  - Nip. Dist.
  - Skin Dist.
- Breast Mass 5
  - L
  - H
  - W
  - Nip. Dist.
  - Skin Dist.
- Breast Mass 6
  - L

- H
- W
- Nip. Dist.
- Skin Dist.
- Breast Mass 7
- L
- H
- W
- Nip. Dist.
- Skin Dist.
- Breast Mass 8
- L
- H
- W
- Nip. Dist.
- Skin Dist.
- Breast Mass 9
- L
- H
- W
- Nip. Dist.
- Skin Dist.
- Breast Mass 10
- L
- H
- W
- Nip. Dist.
- Skin Dist.
- B.Mass1 StrRatio
- A
- B
- Breast Mass1 Elas. Ratio
- A
- B
- B.Mass2 StrRatio
- A
- B
- Breast Mass2 Elas. Ratio
- A
- B
- B.Mass3 StrRatio
- A
- B
- Breast Mass3 Elas. Ratio
- A
- B
- B.Mass4 StrRatio
- A
- B
- Breast Mass4 Elas. Ratio
- A
- B
- B.Mass5 StrRatio
- A
- B
- Breast Mass5 Elas. Ratio
- A
- B
- B.Mass6 StrRatio
- A
- B
- Breast Mass6 Elas. Ratio
- A
- B
- B.Mass7 StrRatio
- A
- B
- Breast Mass7 Elas. Ratio
- A
- B
- B.Mass8 StrRatio
- A
- B
- Breast Mass8 Elas. Ratio
- A
- B
- B.Mass9 StrRatio
- A
- B
- Breast Mass9 Elas. Ratio

- A
- B
- B.Mass10 StrRatio
- A
- B
- Breast Mass10 Elas. Ratio
- A
- B
- Testis
- Testis L
- Testis H
- Testis W
- Testis Mass 1
- d1
- d2
- d3
- Testis Mass 2
- d1
- d2
- d3
- Testis Mass 3
- d1
- d2
- d3
- Epididymis
- Epididymis L
- Epididymis H
- Epididymis W

**D-Mode**

- Parathyroid 1
- Parathyroid 2
- Testis A
- Testis V
- Epididymis A
- Epididymis V

### 6.2.4 Reproduction

**B-Mode**

- Dog CRL
- Dog GS
- Dog HD
- Dog BD
- Feline BD
- Feline HD
- Equine GS-H
- Equine GS-V
- Bovine CRL
- Bovine TD
- Bovine HD
- Ovine CRL
- Ovine BPD
- Uterus D
- Ovary L
- Ovary H
- Prostate L
- Prostate H
- Prostate W
- Testicle L
- Testicle W
- ----------
- Prostate
- Prostate L
- Prostate H
- Prostate W

### 6.2.5 Vascular

**B-Mode**

- CCA IMT
- Bulb IMT
- ICA IMT
- ECA IMT
- ----------
- IMT
- CCA IMT
- Bulb IMT
- ICA IMT
- ECA IMT
- CCA
- Outer Diameter

- Inner Diameter
- Outer Area
- Inner Area
- Bulb
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Carotid Bifurcation
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- ICA
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- ECA
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Carotid Stenosis 1
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Carotid Stenosis 2
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Carotid Stenosis 3
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Carotid Stenosis 4
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- C.Iliac A
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Ex.Iliac A
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- IIA
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- CFA
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- DFA
- Outer Diameter
- Inner Diameter
- Outer Area
- Inner Area
- Int Jug V
- Anterior-Posterior
- Transverse
- Checklist
- C.Iliac V
- Anterior-Posterior
- Transverse
- Checklist
- Ex.Iliac V
- Anterior-Posterior
- Transverse
- Checklist

- IIV
- Anterior-Posterior
- Transverse
- Checklist
- CFV
- Anterior-Posterior
- Transverse
- Checklist
- DFV
- Anterior-Posterior
- Transverse
- Checklist

**D-Mode**

- CCA
- ICA
- ECA
- Bulb
- Carotid Bifurcation
- C.Iliac A
- Ex.Iliac A
- IIA
- CFA
- DFA
- ----------
- CCA(Sten)
- Pre Sten
- Sten
- Post Sten
- ICA(Sten)
- Pre Sten
- Sten
- Post Sten
- ECA(Sten)
- Pre Sten
- Sten
- Post Sten
- Bulb(Sten)
- Pre Sten
- Sten
- Post Sten
- Carotid Bifurcation(Sten)
- Pre Sten
- Sten
- Post Sten
- Carotid Stenosis 1
- Pre Sten
- Sten
- Post Sten
- Carotid Stenosis 2
- Pre Sten
- Sten
- Post Sten
- Carotid Stenosis 3
- Pre Sten
- Sten
- Post Sten
- Carotid Stenosis 4
- Pre Sten
- Sten
- Post Sten
- C.Iliac A(Sten)
- Pre Sten
- Sten
- Post Sten
- Ex.Iliac A(Sten)
- Pre Sten
- Sten
- Post Sten
- IIA(Sten)
- Pre Sten
- Sten
- Post Sten
- CFA(Sten)
- Pre Sten
- Sten
- Post Sten
- DFA(Sten)
- Pre Sten
- Sten

- Post Sten
- C.Iliac V
- PV
- Reflux
- Checklist
- Ex.Iliac V
- PV
- Reflux
- Checklist
- IIV
- PV
- Reflux
- Checklist
- CFV
- PV
- Reflux
- Checklist
- DFV
- PV
- Reflux
- Checklist

## 6.3 Report

- Specific report template by application
- Editable value in report
- Images selectable
- Anatomy information
- User-defined report template
- Selecting report modules
- Adding/removing measurement items from the report
- Changing report layout
- Load/save comment
- Viewing history reports
- Preview and printing reports
- Able to Export as PDF+Word file
- Set the calculation method for the final value in batch

# 7 Exam Storage and Management

## 7.1 Exam storage

- 256 GB SSD:
  - More than 161.57 GB internal hard drive reserved for animal data storage
  - Capable of storage up to approximately 470606 single frames (FRM format)
- 1 TB SSD:
  - More than 888.86 GB internal hard drive reserved for animal data storage
  - Capable of storage up to approximately 2588992 single frames (FRM format)
- Storage area:
  - Pre-settable: image area, standard area, full-screen
  - Image area: 1430 x 810
  - Standard area: 1920 x 920
  - Full-screen: 1920 x 1080

## 7.2 Exam management

- iStation workstation dedicated for animal exam management
- Animal 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 image as BMP/JPG/TIFF/DCM/FRM format (FRM: system format)

- Export cine as DCM/AVI/CIN/MP4 format (CIN: system format)
- Support backup/send to USB devices, DVD-RW media

## 7.3 iWorks

- Auto workflow protocol
- Templates are user configurable
- Functions: pause, stop, replace, repeat, skip, insert single step, return and continue, steps in thumbnail
- iWorks setup mode: B/Dual/B+Color/B+PW/B+Color+PW/B+CW/B+Color+CW/B+M
- iWorks setup annotation: support up to 2 annotations, location and font size are configurable
- iWorks setup bodymark: select existing library, and probe indicator is pre-settable
- iWorks setup measurement: select existing measurement library
- Template import and export are available

# 8 Connectivity

## 8.1 Ethernet Network Connection

- Cable connection
- Wireless connection: Internal WIFI (including EAP Network)

## 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 Abdomen SR
- DICOM Cardiac SR
- DICOM Vascular SR

## 8.3 iStorage

Direct network storage tool between ultrasound system and personal computer

## 8.4 iConnect

Support remote control and connect the ultrasound system to perform functional operations, image parameter adjustment and remote maintenance

## 8.5 u-Link (applicable for CE region only)

u-Link is used to connect the ultrasound system with software applications which support the u-Link protocol

## 8.6 GalleryDrop

- Transfer the images or cines from ultrasound system to mobile devices through local connection
- Transfer the images and cines by QR Code
- Support hide animal information
- Support save the images and cines to mobile device locally

## 8.7 Send To Email

Support send the images or cines from ultrasound system to other's email directly.

# 9 Probes

## 9.1 Curved array

### 9.1.1 C5-1s

- Application: Abdomen (Canine, Equine, Bovine, Ovine), Reproduction (Canine, Equine, Bovine, Ovine), MSK (Canine, Equine, Bovine, Ovine)
- Bandwidth: 1.2 – 6.0 MHz
- Depth: 4.0 – 40.0 cm
- Biopsy Guide: NGB-022, available, multi angle, reusable; LPUBKG60, disposable; CIVCO 658-004, disposable

### 9.1.2 C6-2Gs

- Application: Abdomen (Canine, Equine, Bovine, Ovine), Cardiology (Canine), Reproduction (Canine, Equine, Bovine, Ovine)
- Bandwidth: 2.6 – 8.2 MHz
- Depth: 4.0 – 40.0 cm
- Biopsy Guide: NGB-024, available, multi angle, reusable; LPUBKG81, disposable

### 9.1.3 C11-3s

- Application: Abdomen (Canine, Feline), Cardiology (Canine, Feline), Reproduction (Canine, Feline), Small Parts (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 2.6 – 12.8 MHz
- Depth: 1.5 – 35.0 cm
- Biopsy Guide: NGB-018, available, multi angle, reusable

### 9.1.4 mSC6-1s

- Application: Abdomen (Canine, Feline), Cardiology (Canine, Feline),Reproduction (Canine, Feline), Small Parts (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 2.6 – 8.2 MHz
- Depth: 4.0 – 40.0 cm
- Biopsy Guide: NGB-063, available, multi angle, reusable

### 9.1.5 C13-3s

- Application: Abdomen (Canine, Feline), Cardiology (Canine, Feline), Reproduction (Canine, Feline), Small Parts (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 2.6 – 12.8 MHz
- Depth: 1.5 – 35.0 cm
- Biopsy Guide: not available

## 9.2 Linear array

### 9.2.1 L13-3Ns

- Application: Abdomen (Canine, Feline), Small Parts (Canine, Feline, Equine), MSK (Canine, Feline, Equine), Vascular (Canine, Feline, Equine), Ocular (Canine, Feline), Reproduction (Canine, Feline)
- Bandwidth: 3.0 – 13.0 MHz
- Depth: 1.5 – 30.0 cm
- Biopsy Guide: NGB-053, available, multi-angle, reusable

### 9.2.2 L16-4Hs

- Application: Abdomen (Canine, Feline), Small Parts (Canine, Feline, Equine), MSK (Canine, Feline, Equine)
- Bandwidth: 4.0 – 12.8 MHz
- Depth: 1.5 – 35.0 cm
- Biopsy Guide: not available

#### 9.2.3 L14-3Ws

- Application: Abdomen (Canine, Feline), Small Parts (Canine, Feline),MSK (Canine, Feline), Ocular (Canine, Feline), Reproduction (Canine, Feline)
- Bandwidth: 3.0 – 15.0MHz
- Depth: 1.5 – 35 cm
- Biopsy Guide: NGB-054, available , multi angle, reusable

#### 9.2.4 L24-6Hs

- Application: Abdomen (Canine, Feline), MSK (Canine, Feline), Small Parts (Canine, Feline), Ocular (Canine, Feline)
- Bandwidth: 6.0 – 24.0 MHz
- Depth: 0.5 – 7.0 cm
- Biopsy Guide: not available

### 9.3 Phased array

#### 9.3.1 P4-2s

- Application: Cardiology (Canine, Equine, Bovine, Ovine)
- Bandwidth: 1.5 – 4.5 MHz
- Depth: 2.0 – 38.0 cm
- Biopsy Guide: NGB-011, available, multi angle, reusable

#### 9.3.2 P8-2s

- Application: Cardiology (Canine, Feline), Abdomen (Canine, Feline)
- Bandwidth: 2.3 – 8.0 MHz
- Depth: 2.0 – 38.0 cm
- Biopsy Guide: not available

#### 9.3.3 P10-4s

- Application: Cardiology (Canine, Feline), Abdomen (Canine, Feline)
- Bandwidth: 3.0 – 11.4 MHz
- Depth: 2.0 – 38.0 cm
- Biopsy Guide: not available

### 9.4 Intra-cavity

#### 9.4.1 6LE5Vs

- Application: Reproduction (Equine, Bovine, Ovine)
- Bandwidth: 3.0 – 11.5 MHz
- Depth: 1.5 – 35 cm
- Biopsy Guide: not available

## 10 Peripheral Devices and Accessories

### 10.1 Built-in Battery for Main Unit

- Replaceable and rechargeable lithium battery
- Empty battery recharged to full in 4 hours
- Continuous work time: about 1.5 hours in B mode

### 10.2 Mobile Trolley

#### 10.2.1 MT3

- Power supply module
- Dimensions (WxD): about 519 mm x 578 mm
- Platform height: 887 – 1207 mm; adjustable
- Weight:
  - Without retractable cable and probe extend module: about 28.8 kg
  - With retractable cable and without probe extend module: about 32.5 kg
  - Without retractable cable and with probe extend module: about 30.9 kg
  - With retractable cable and probe extend module: about 34.6 kg
- Probe holders

- Auxiliary output cable
- Probe extend module
- Cover grounding cable
- Printer bracket

#### 10.2.2 MT2

- Dimensions (WxD): about 515 mm x 505 mm
- Platform height: 885 mm, 973 mm; 2 levels
- Weight:
  - Without printer bracket and probe extend module: about 15 kg
  - With printer bracket and probe extend module: about 18.8 kg
- Probe holders
- Probe extend module
- Printer bracket

### 10.3 Barcode reader

- 1-D barcode reader
- 2-D barcode reader
- JADAK HS-1M
- JADAK HS-1R (supporting RFID)

### 10.4 Footswitch

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

### 10.5 U-Bank

- U-Bank with 2 batteries: 1.95 kg
- U-Bank with 4 batteries: 2.87 kg

### 10.6 ECG

- 6-pin, AHA/IEC, for 3-lead wires
- ECG wave display: on/off
- Position: 0 – 100%, 5%/step
- Trig mode: off/single/dual/timer
- Gain: 0 – 30, 1/step
- Sweep speed: 6 steps
- Invert: on/off

### 10.7 Built-in Wireless adapter

- Encryption: WPA, WPA2
- Max transfer speed: 300 Mbps
- Protocols: IEEE 802.11 ac/a/b/g/n
- Frequency: 2.4G/5G

### 10.8 Built-in DVR

- Built-in digital video recorder, save space and is a useful tool for education and memory
- Max storage length each time: 60 min

## 11 System Inputs and Outputs

### 11.1 I/O Port

- USB 3.0: 4 ports
- Ethernet: 1 port
- HDMI: 1 port
- S-Video: 1 port

### 11.2 ECG module

- ECG port: 1

### 11.3 Probe Extend module

- Probe port: 2

## 12 Safety and Conformance

### 12.1 Quality standards

- ISO 9001

### 12.2 Design standards

- EN 60601-1 and IEC 60601-1

- EN 60601-1-2 and IEC 60601-1-2
- ETSI EN 301 489-1
- ETSI EN 301 489-17
- ETSI EN 300 328
- EN 62311
- EN 60601-2-37 and IEC 60601-2-37

## 12.3 CE declaration

The device is fully in conformance with the radio equipment directive 2014/53/EU.

NOTICE:

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

Mindray Animal Medical reserves the right to make changes in specifications and features shown herein, or discontinue the product at any time without notice or obligation. Contact your Representative for the most current information.

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