Vetus M11

Veterinary Diagnostic Ultrasound System

Datasheet

mindray animal care

1 System Overview

1.1 Application

- Abdomen
- Cardiology
- Reproduction
- Musculoskeletal

1.2 Transducer types

- Curved array transducer
- Linear array transducer
- Phased array transducer

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)
- Continuous Wave Doppler
- TDI (Include TVI, TVD, TVM, TEI)
- TDI QA (TDI Quantitative Analysis)
- UWN+ (Ultra-Wideband Non-linear Plus) Contrast Imaging
- Contrast Imaging QA (Quantitative Analysis)
- Low MI Contrast
- LVO (Left Ventricular Opacification)
- Stress Echo
- TT QA (Tissue Tracking Quantitative Analysis)
- TTQA-RV
- Auto DFR
- iWorks
- iScanHelper
- iNeedle (Needle Visualization Enhancement)
- Clinical Measurement Package
- AutoEF (Automatic Ejection Fraction measurement)
- DICOM
- ECG function
- Smart 3D
- McAfee
- Smart VTI
- Smart CaVC
- Smart B-line
- 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)
- HDR Flow (High Dynamic Range Flow)
- HR Flow (High Resolution Flow)
- Raw data processing
- 1 active probe port
- 256 GB solid hard drive
- 2-USB
- HDMI
- Internal WIFI
- MedTouch
- MedSight
- UltraAssist (Off-line software)
- Net Storage

- iStorage
- Built-in Battery
- Power adapter
- Control panel film with language
- Moble Trolley: UMT-500
- Audio/Video extend module: iDock51
- USB to Lan adapter
- Barcode reader
- Footswitch
- Travelling pack
- PEM-51 probe extend module

1.4 Language support

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

2 Physical Specification

2.1 Dimension and weight

- Width: 390±5 mm
- Depth: 362±5 mm
- Height: 59± 3mm
- Weight: approx. 6.5kg (with batteries), 5kg (no accessories or batteries)

2.2 Monitor

- 15.6-inch high resolution color LED monitor
- Resolution: 1920×1080
- Automatic brightness adjustment
- Screen Saver
- Open angle adjustable: 0°-150° (The angle between the monitor and control panel)
- View angle (right/left): 89°

2.3 Handle

2.4 Probe port

- 1 port connect to a transducer or the probe extend module
- 1 pencil probe port (Reserved)

2.5 Electrical power

- AC adapter Input:
  - Voltage: 100-240V–
  - Frequency: 50/60 Hz
  - Power input: 2.0A max
- Battery: Lithium-Ion Battery Pack 14.8V DC, 5800mAh (single battery)

2.6 Operating Environment

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

2.7 Storage & Transportation Environment

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

2.8 Alloy Enclosure

- Magnesium-alloy enclosure design

3 User Interface

3.1 Control panel

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

3.2 System boot-up

- Boot-up from complete shut-down not more than 90sec
- Boot-up from standby mode not more than 12sec
- Shut down not more than 30sec

3.3 Comments

- Supports text input and arrow
- Adjustable text size and arrow size and direction
- Supports home position
- Covers various application
- More than 800 comments items for versatile application
- User customizable

3.4 Bodymark

- More than 140 bodymarks for versatile application
- User customizable

3.5 Screen information* (presettable)

- Manufacturer 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 Trackball 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 82, 944 channels
- 12-beam forming

4.2 B-mode

- Display formats: Single (B), Dual (B+B), Quad (4B)
- iClear: Off; On, 1-7steps
- iBeam: Off; On, 1-3steps
- iTouch: Auto optimization (TGC, Gain)
- Image quality: Pen/Gen/Res (depend on probe)
- B steer: available on linear transducers
- ExFOV: Off; On, 1-2steps (extended FOV available on convex and linear transducers)
- Depth: 1.5-40cm (depend on transducer)

- Frame rate (max): 1041f/s
- Acoustic output power: 3.2%-100%
- TGC: 8 pods on control panel
- LGC: 4 segments on soft menu (4 levels of preset values)
- Dynamic range: 30-200, 5/step (30-240 for C11-3s)
- Gain: 0-100, 1/step
- Focus number: 1-4, adjustable
- Focus position: Max. 16, adjustable
- FOV (Field of View): on/off
- Line density: L/M/H/UH
- Persistence: 0-7, 8 steps
- Horizontal Scale: on/off
- L/R flip: Right/Left
- U/D flip: Up/Down
- Rotation: 0°, 90°, 180°, 270°
- TSI (Tissue Specific Imaging): general/muscle/fluid/fat
- Gray Map: 8 types
- Tint: on/off
- Tint map: off; 8 types
- Auto Merge: 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
- Image quality: HPen/HGen/HRes or HPen/ HPen-Gen/HGen/HRes (depends on probe)

4.4 M-mode

- Display formats: V2: 3, V3: 2, H2: 3, V3: 1, Full (V: vertical, H: horizontal, L: left, R: right)
- Color M-mode available (convex and phased probe only)
- Acoustic output power: 3.2%-100%
- Dynamic range: 30-180, 5/step (30-240 for C11-3s)
- Gain: 0-100, 1/step
- Speed: 6 levels
- M soften: 0-4, 5 steps
- Tint: on/off
- Tint map: off; 8 types
- Gray Map: 8 types
- Edge enhance: 0-3

4.5 Free Xros M

- Display formats: V2: 3, V3: 2, H2: 3, V3: 1 (V: vertical, H: horizontal, L: left, R: right)
- Color Free Xros M available
- Up to 3 lines
- Speed: 6levels
- Tint: on/off
- Tint map: off; 8 types
- Gray Map: 8 types

4.6 Free Xros CM

- Only available on TDI
- Display formats: V2: 3, V3: 2, H2: 3, V3: 1, (V: vertical, H: horizontal, L: left, R: right)
- Acoustic output power: 3.2%-100%
- Gain: 0-100, 1/step
- Speed: 6levels
- Tint: on/off
- Tint map: off; 8 types
- Gray Map: 8 types

4.7 Color Doppler Imaging

- Dual live: on/off
- HR Flow: High Resolution Flow provides better image quality and flow sensitivity
- Image quality: Pen/Gen/Res
- Velocity: 1.0-150 cm/s
- Steer: max. 30 degrees (linear transducer)
- Max frame rate: 316 f/s
- Acoustic output power: 3.2%-100%
- Gain: 0-100, 2/step
- ROI size/position: adjustable
- Scale: 30 levels
- Wall filter: 0-7, 8 steps
- PRF: max. 15.3 kHz, min.0.1 kHz
- Packet size: 0-3, 4 steps
- Flow state: L/M/H, 3 steps
- Smooth: 0-6, 7 steps
- B/C Align: on/off
- Priority: 0%-100%, 1%/step
- Color map: V0-V10, VV0-VV9, 21 types (Variance)
- Invert: on/off
- Persistence: 0-6, 7 steps
- Velocity tag: on/off
- Line density: L/M/H/UH, 4 steps

4.8 Power Doppler Imaging

- Dual live: on/off
- HR Flow: High Resolution Flow provides better image quality and sensitivity
- Support directional power doppler
- Image quality: Pen/Gen/Res
- Acoustic output power: 3.2%-100%
- Dynamic range: 10-70, 5/step
- Gain: 0-100, 2/step
- ROI size/position: adjustable
- Steer: max. 30degrees (linear transducers)
- Scale: 30 steps
- Wall filter: 0-7, 8 steps
- PRF: max. 15.3kHz, min.0.1kHz
- Packet size: 0-3, 4 steps
- Flow state: L/M/H
- Smooth: 0-6, 7 steps
- B/C align: on/off
- Priority: 0%-100%, 1%/step
- Color map: 4 types
- Directional color map: 4 types
- Persistence: 7 steps
- 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, L: Left)
- iTouch: on/off, auto optimization (Baseline, PRF)
- Image quality: Pen, Gen, Res
- PW velocity: max. 898cm/s, min. 2.36cm/s
- CW velocity: max. 3744cm/s, min. 1.87cm/s
- Sample volume size: 0.2-20mm (PW only), 0.5-5mm/step
- Sample gate depth: adjustable
- Baseline: -4–4, 9 steps
- PW Steer: max. 30 degrees (linear transducer)
- Volume: 0%-100%, 2%/step
- PW PRF: max. 24kHz, min. 0.7kHz
- CW PRF: max. 100kHz, min. 0.3kHz
- Gain: 0-100, 2/step
- Dynamic range: 24-72, 2/step
- Sweep speed: 6 levels
- Wall filter: 0-6, 7 steps

- Invert: on/off
- Auto invert: on/off
- Angle: -89°–89°, 1/step
- Quick angle: 0°, -60°, 60°
- Auto Correct (linear probe only, Duplex/Triplex "Off" or Display Format "Full" status)
- Tint: on/off
- Tint map: off, 8 types
- HPRF: on/off
- Time/frequency resolution: 0-4, 5 steps
- Auto calc: on/off
- Auto calc cycle: 1-5, 1/step
- Trace area: above, below, all
- Trace Sensitive: 0-5, 6 steps
- Trace Smooth: 0-4, 5 steps
- Duplex/Triplex: on/off (both supporting PW & CW duplex/triplex)

4.10 Tissue Velocity/Energy Imaging

- Available on phased array transducer
- Dual live: side by side displays B and B+TVI
- Max frame rate: 1583f/s
- PRF: max. 15.4kHz, min. 0.4kHz
- Acoustic output power: 3.2%-100%
- Gain: 0-100, 2/step
- Dynamic range: 10-70, 5/step (TEI only)
- ROI size/position: adjustable
- Scale: max. 30 steps, 5.0-150cm/s
- Baseline: -8–8, 17 steps (TVI only)
- Wall filter: 0-7, 8 steps
- Packet size: 0-3, 4 steps
- Flow state: L/M/H, 3 steps
- Smooth: 0-6, 7 steps
- B/C Align: on/off
- Priority: 0%-100%, 1%/step
- Map: 10 types
- Invert: on/off (TVI only)
- Persistence: 0-6, 7 steps
- Line density: L/M/H/UH, 4 steps

4.11 Tissue Velocity Doppler

- Available on phased array transducer
- Display formats: V2: 3, V3: 2, H2: 3, V3: 1, Full (V: vertical, H: horizontal, L: left, R: right)
- Sample volume size: 0.2-20 mm, 12 steps
- Sample gate depth: adjustable
- Scale: max. 718.18 cm/s, min. 4.22 cm/s
- Baseline: -4–4, 9 steps
- Volume: 0%-100%, 2%/step
- PRF: max. 24.0kHz, min. 0.7kHz
- Gain: 0-100, 2/step
- Dynamic range: 24-72, 2/step
- Speed: 6levels
- Wall filter: 0-6, 7 steps
- Invert: on/off
- Angle correction: -89°–89°, 1/step
- Quick angle: 0°, -60°, 60°
- Gray map: 10types
- Tint: on/off
- Tint map: Off; 8 types
- Time/frequency resolution: 0-4, 5 steps

4.12 Tissue Velocity Motion

- Display formats: V2: 3, V3: 2, V 3: 1, H2: 3, FULL (V: vertical, H: horizontal)
- Acoustic output power: 3.2%-100%
- Gain: 0-100, 2/step
- M sweep speeds: 6 steps

- M soften: 5 steps
- Gray Map: 8 types
- Edge enhancement: 4 steps

4.13 iScape View

- Panoramic imaging
- Available on all transducers
- Acquisition method: B mode and Power mode
- Tint map: off; 8 types
- Rotation: 0°–355°

4.14 Zoom

- iZoom
  - Full screen zoom
  - Normal image, Zoom standard area, Zoom image area, 3 steps
- Spot zoom (write zoom) 0.8-10x
- Pan zoom (read zoom) 0.8-10x

4.15 UWN+ Contrast Imaging*/ Low MI Contrast

- Available probe: C11-3s (Abdomen), P8-2s (Low MI Contrast), P10-4s (Low MI Contrast), SP5-1s (LVO&Low MI Contrast)
- 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
- Supports Low MI contrast imaging
- Micro Flow Enhancement (MFE) available
- 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
- MFE: on/off
- Destruct: instantly destroy contrast bubbles
- iClear: off; 7 steps
- Mix: mix contrast image with tissue image
- Mix map: 7 types, available when Mix mode is active
- Persistence: 8 steps
- MFE period: 0.1s, 0.2s, 0.4s, 0.6s, 0.8s, 1.0s, MAX
- Dynamic range: 30-200, 5/step
- Gray map: 8 types; inactive when Mix mode is in use
- Tint map: off; 8 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: 21 levels
- Destruct time: 21 levels

*This 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 systems makes no claims concerning the safety or effectiveness of contrast agents.

4.16 Contrast Imaging QA

- Support Time-Intensity Curve analysis
- Table display: display data in table
- Freehand ROI: manually deploy ROI on the cine
- Up to 8 ROIs
- Delete all
- Delete current
- Fit curve
- Raw curve
- Motion tracking: Reduce the effect of tissue movement
- XScale: 5steps

4.17 Stress Echo

- Available probe: P8-2s, P10-4s, SP5-1s
- 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 score4-7)
- Customized stages: up to 6 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 and LV volume measurement

4.18 TT QA/ TTQA-RV

- 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
- Accept & compute: start tracking myocardium movement when user accept trace result
- Display effect: 0/1; at 0, tracking in velocity vector arrow; at 1, tracking in dots
- Trace method: 3 point or manual for ALAX, A4C, A2C; manual for PSAXB, PSAXM, PSAXAP
- Bull's eye (only available for TT QA): 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; cycle from 1-10, 1/step
- 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, Displacement, L Strain, L Strain R, T Strain, T Strain R, Area, R Strain, R Strain R, C Strain, C Strain R, Rot., Rot. R
- Smooth: 0-4, 1/step

4.19 Auto DFR

Automatic diastolic function assessment tool, automatically detect diastolic parameters of PW and TDI PW, to calculate a series diastolic function index E, A, E/A, e', E/e' automatically.

- MV E/A
- MV E/E' Septal
- MV E/E'Lateral

4.20 AutoEF

- Adjust Frame
- Layout: Dual/ Single
- Diastole FR
- Systole FR
- Volume curve: on/off
- Adjustment for the border of endocardium

4.21 iBeam

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

4.22 iTouch

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

4.23 Echo Boost

- Only for cardiac exams

- 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

4.24 B steer

- Only for linear transducers

4.25 ExFov

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

4.26 QSave

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

4.27 TDI QA

- Dedicated quantification tool for TDI velocity, strain, strain rate analysis
- Ellipse ROI, Standard ROI
- Up to 8 of ROI
- Delete all
- Delete current
- ROI tracking: tracking ROI along with cardiac movement
- Smooth: 1-7, 1/step
- X scale: 1-5, 1/step
- 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

4.28 Smart 3D

- Acquisition Method: Rocked, Linear
- VR/MPR: set parameters for volume rendered image or MPR plane
- Current window: switch VR or A/B/C plane
- Display formats: Quad, Dual, Single, MPR only, A4: 1
- VOI: on/off
- Reset: all, orientation, reset curve
- VR orientation: 0°, 90°, 180°, 270° for quick rotation
- Inversion: inversion, gray
- Accept VOI: on/off
- Flip: flip VR
- Sync: synchronize VR with selected plane
- Render modes: Surface, Min, Max, X-ray
- 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: 0-20, 1/ step
- Tint: off; 8 types
- Brightness: 0%-100%, 2%/step
- Contrast: 0%-100%, 2%/step
- Tool: Auto rotation
  - Rotation control: play, single loop, loop
  - Direction: left/right, up/down
  - Position: Set Start/Set end
- Edit
  - Eraser: Soft eraser/ hard eraser, inside polygon, outside polygon, inside contour, outside contour, inside rect, outside rect, line
  - Eraser Diameter: 8-60, 1/step

- Cut (area selection): inside polygon, outside polygon, inside contour, outside contour, inside rect, outside rect
- Undo: undo, undo all

4.29 iNeedle

- Needle visualization enhancement
- Best angle indicator
- Needle steer: -50, -40, -30, -20, 20, 30, 40, 50 degrees

4.30 Smart VTI

Automatic Velocity Time Integral measurement, automatically trace the PW spectrum of LVOT, and obtain VTI, SV, CO and SVV, for rapid assessment of volume responsiveness

4.31 Smart CaVC

Automatic Caudal Vena Cava trace and calculation, automatically trace the CaVC diameter change, and calculate the CI, DI and CaVC Variation, helping for volume status assessment and guide the fluid therapy.

4.32 Smart B-line

Automatic B-line recognition and analysis, automatically count the number, distance and percentage of B-Lines, guiding the fluid infusion and preventing pulmonary edema.

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
- Maximum cine memory is up to 33270 frames or 239s (depend on the mode)
- Retrospective storage (online setting available, 1-120s, or 1-120 cycles, pre-settable) and prospective storage (1-480s, 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

- iClear
- Zoom
- TGC
- LGC
- HScale
- Dual live
- Auto merge
- iTouch brightness
- Gain
- Dynamic range
- Gray map
- Tint map
- Flip
- Rotation
- Echo Boost

5.2.2 M-mode

- Speed

- Dynamic range
- Gain
- Gray map
- Tint map
- Display Format

5.2.3 Color

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

5.2.4 PW

- Baseline
- Wall filter
- Speed
- Angel correction
- Quick angle
- Invert
- Audio
- T/F Res
- Dynamic range
- Gray map
- Tint map

6 Measurement/Analysis and Report*

6.1 Generic measurements

6.1.1 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
- Vol (Cardiac)
- ----------
- Volume
- Volume (Ellipse)
- Volume (E+Dist.)
- Ratio (D)
- ----------
- Volume
- Volume
- Volume (Ellipse)
- Volume (E+Dist.)
- Ratio (A)
- Area1
- Area2
- Strain Ratio
- A
- B
- Volume Flow
- Vas Area
- TAMEAN
- TAMAX

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

6.2 Clinical option measurement package

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

6.2.1 Abdominal

B-Mode

- Liver
- Renal L
- Renal H
- Renal W
- Cortex
- CBD
- Portal V Diam
- GB L
- GB H
- GB W
- GB wall th
- Panc duct
- Panc body
- Spleen H
- Splenic A Diam
- Splenic V Diam
- Pylorus
- Pylorus Wall
- Iliac Diam
- Ureter
- Hepatic Lesion1 d1
- Hepatic Lesion1 d2
- Hepatic Lesion1 d3
- Hepatic Lesion2 d1
- Hepatic Lesion2 d2
- Hepatic Lesion2 d3
- Hepatic Lesion3 d1
- Hepatic Lesion3 d2
- Hepatic Lesion3 d3
- Hepatic Cyst1 d1
- Hepatic Cyst1 d2
- Hepatic Cyst1 d3
- Hepatic Cyst2 d1
- Hepatic Cyst2 d2
- Hepatic Cyst2 d3
- Hepatic Cyst3 d1
- Hepatic Cyst3 d2
- Hepatic Cyst3 d3
- Renal Cyst1 d1
- Renal Cyst1 d2
- Renal Cyst1 d3
- Renal Cyst2 d1
- Renal Cyst2 d2
- Renal Cyst2 d3
- Renal Cyst3 d1
- Renal Cyst3 d2
- Renal Cyst3 d3
- Renal Lesion1 d1
- Renal Lesion1 d2
- Renal Lesion1 d3
- Renal Lesion2 d1
- Renal Lesion2 d2
- Renal Lesion2 d3
- Renal Lesion3 d1
- Renal Lesion3 d2
- Renal Lesion3 d3

- AdrenalTip T
- AdrenalTail T
- LymphNode1 L
- LymphNode1 T
- LymphNode2 L
- LymphNode2 T
- LymphNode3 L
- LymphNode3 T
- Jejunal1 L
- Jejunal1 T
- Jejunal2 L
- Jejunal2 T
- Medial Iliac1 L
- Medial Iliac1 T
- Medial Iliac2 L
- Medial Iliac2 T
- HepaticLymphNode L
- HepaticLymphNode T
- BL Height
- BL Depth
- BL TD
- 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
- Adrenal L
- Adrenal H
- Adrenal W
- CrMV Diam
- CaMV Diam
- Thyroid L
- Thyroid H
- Thyroid W
- 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
- Thyroid Nodule1 d1
- Thyroid Nodule1 d2
- Thyroid Nodule1 d3
- Thyroid Nodule2 d1
- Thyroid Nodule2 d2
- Thyroid Nodule2 d3
- Thyroid Nodule3 d1
- Thyroid Nodule3 d2
- Thyroid Nodule3 d3
- Thyroid Cyst1 d1
- Thyroid Cyst1 d2
- Thyroid Cyst1 d3
- Thyroid Cyst2 d1
- Thyroid Cyst2 d2
- Thyroid Cyst2 d3
- Thyroid Cyst3 d1
- Thyroid Cyst3 d2
- Thyroid Cyst3 d3
- ----------
- Aorta Sten D
- Aorta Sten A
- Renal Vol
- BL Vol
- PV/Ao
- ----------
- Hepatic Lesion1
- Hepatic Lesion1 d1
- Hepatic Lesion1 d2

- Hepatic Lesion1 d3
- Hepatic Lesion2
- Hepatic Lesion2 d1
- Hepatic Lesion2 d2
- Hepatic Lesion2 d3
- Hepatic Lesion3
- Hepatic Lesion3 d1
- Hepatic Lesion3 d2
- Hepatic Lesion3 d3
- Hepatic Cyst1
- Hepatic Cyst1 d1
- Hepatic Cyst1 d2
- Hepatic Cyst1 d3
- Hepatic Cyst2
- Hepatic Cyst2 d1
- Hepatic Cyst2 d2
- Hepatic Cyst2 d3
- Hepatic Cyst3
- Hepatic Cyst3 d1
- Hepatic Cyst3 d2
- Hepatic Cyst3 d3
- Kidney
- Renal L
- Renal H
- Renal W
- Cortex
- Renal Cyst1
- Renal Cyst1 d1
- Renal Cyst1 d2
- Renal Cyst1 d3
- Renal Cyst2
- Renal Cyst2 d1
- Renal Cyst2 d2
- Renal Cyst2 d3
- Renal Cyst3
- Renal Cyst3 d1
- Renal Cyst3 d2
- Renal Cyst3 d3
- Renal Lesion1
- Renal Lesion1 d1
- Renal Lesion1 d2
- Renal Lesion1 d3
- Renal Lesion2
- Renal Lesion2 d1
- Renal Lesion2 d2
- Renal Lesion2 d3
- Renal Lesion3
- Renal Lesion3 d1
- Renal Lesion3 d2
- Renal Lesion3 d3
- LymphNode1
- LymphNode1 L
- LymphNode1 T
- LymphNode2
- LymphNode2 L
- LymphNode2 T
- LymphNode3
- LymphNode3 L
- LymphNode3 T
- Jejunal1
- Jejunal1 L
- Jejunal1 T
- Jejunal2
- Jejunal2 L
- Jejunal2 T
- Medial Iliac1
- Medial Iliac1 L
- Medial Iliac1 T
- Medial Iliac2
- Medial Iliac2 L
- Medial Iliac2 T
- HepaticLymphNode
- HepaticLymphNode L
- HepaticLymphNode T
- Bladder
- BL Height
- BL Depth
- BL TD
- Adrenal
- Adrenal L

- Adrenal H
- Adrenal W
- Thyroid
- Thyroid L
- Thyroid H
- Thyroid W
- Parathyroid 1
- L
- H
- W
- Parathyroid 2
- L
- H
- W
- 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
- Thyroid Nodule1
- Thyroid Nodule1 d1
- Thyroid Nodule1 d2
- Thyroid Nodule1 d3
- Thyroid Nodule2
- Thyroid Nodule2 d1
- Thyroid Nodule2 d2
- Thyroid Nodule2 d3
- Thyroid Nodule3
- Thyroid Nodule3 d1
- Thyroid Nodule3 d2
- Thyroid Nodule3 d3
- Thyroid Cyst1
- Thyroid Cyst1 d1
- Thyroid Cyst1 d2
- Thyroid Cyst1 d3
- Thyroid Cyst2
- Thyroid Cyst2 d1
- Thyroid Cyst2 d2
- Thyroid Cyst2 d3
- Thyroid Cyst3
- Thyroid Cyst3 d1
- Thyroid Cyst3 d2
- Thyroid Cyst3 d3

D-Mode

- Arcuate A
- Segment A
- Interlobar A
- Renal A
- Renal V
- Aorta
- CrMA
- CaMA
- Hepatic A
- Splenic A
- CaVC
- Portal V
- M Portal V
- Hepatic V
- Lt Hepatic V
- Rt Hepatic V
- M Hepatic V
- Splenic V
- CrMV
- CaMV
- STA
- ITA
- Parathyroid 1
- Parathyroid 2
- ----------
- RAR
- SMA/Ao

6.2.2 Cardiology

B-Mode

- HR (2D)
- LVLd apical
- LVLs apical
- LVAd apical
- LVAs apical
- LVAd sax MV
- LVAs sax MV
- LVAd sax Endo
- LVAd sax Epi
- RAP
- Duct Art Diam
- Post Ductal
- Pre Ductal
- LCA Diam
- RCA Diam
- PEd (2D)
- PEs (2D)
- VSD Diam
- ASD Diam
- PDA Diam
- PFO Diam
- RVAWd (2D)
- RVAWs (2D)
- RV Fwt
- RVDd (2D)
- RVDs (2D)
- IVSd (2D)
- IVSs (2D)
- LVIDd (2D)
- LVIDs (2D)
- LVPWd (2D)
- LVPWs (2D)
- Diastole (2D)
- Systole (2D)
- Ao Diam (2D)
- LA Diam (2D)
- LV Major
- LV Minor
- LV Area (d)
- LV Area (s)
- AutoEF
- LA Major
- LA Minor
- LA Area
- RV Area (d)
- RV Area (s)
- RV Major
- RV Minor
- RV Base
- RA Major
- RA Minor
- RA Area
- RA Vol (A4C)
- MCS (2D)
- MV Diam
- MV EPSS (2D)
- MVA
- TV Diam
- TVA
- LVOT Diam
- 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)
- RVOT Diam
- MPA Diam (2D)
- RPA Diam (2D)
- LPA Diam (2D)
- PV Diam
- CaVC Diam (Max)
- CaVC Diam (Min)
- CrVC Diam (Max)
- CrVC Diam (Min)

- ----------
- LA/Ao (2D)
- MPA/Ao (2D)
- LV EI
- ----------
- 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
- 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
- Qp/Qs
- LVOT Diam
- LVOT VTI
- RVOT Diam
- RVOT VTI
- LV (2D)
- Diastole (2D)
- Systole (2D)
- IVSd (2D)
- LVIDd (2D)

- LVPWd (2D)
- IVSs (2D)
- LVIDs (2D)
- LVPWs (2D)
- HR (2D)
- Simpson
- A2Cd
- A2Cs
- A4Cd
- A4Cs
- HR (2D)
- LA Vol (Simp)
- LA Vol (A2C)
- LA Vol (A4C)
- LA Vol (A-L)
- LA apical
- LAA (A2C)
- LAA (A4C)
- 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

M-Mode

- HR (M)
- LVET (M)
- PEd (M)
- PEs (M)
- RVET (M)
- RVPEP (M)
- RVAWd (M)
- RVAWs (M)
- RVDd (M)
- RVDs (M)
- IVSd (M)
- IVSs (M)
- LVIDd (M)
- LVIDs (M)
- LVOT Diam
- LVPEP (M)
- LVPWd (M)
- LVPWs (M)
- Diastole (M)
- Systole (M)
- Ao Diam (M)
- LA Diam (M)
- MV ALL
- MV A Amp
- MV E Amp
- MV D-E Slope
- MV D-E Amp
- MV E-F Slope
- MV EPSS (M)
- MCS (M)
- MAPSE
- TAPSE
- Ao Arch Diam (M)
- Ao Asc Diam (M)
- Ao Desc Diam (M)
- Ao Isthmus (M)
- Ao Sinus Diam (M)
- Ao st junct (M)
- ACS (M)
- RVOT Diam
- MPA Diam (M)
- RPA Diam (M)
- LPA Diam (M)
- CaVC Diam (Max)
- CaVC Diam (Min)

- CrVC Diam (Max)
- CrVC Diam (Min)
- ----------
- LA/Ao (M)
- MPA/Ao (M)
- ----------
- LV Mass (Cube-M)
- IVSd (M)
- LVIDd (M)
- LVPWd (M)
- LV Tei Index (M)
- MV C-O dur (M)
- LVET (M)
- LV (M)
- Diastole (M)
- Systole (M)
- IVSd (M)
- LVIDd (M)
- LVPWd (M)
- IVSs (M)
- LVIDs (M)
- LVPWs (M)
- HR (M)

D-Mode

- ASD Vmax
- Coarc Post-Duct
- Coarc Pre-Duct
- DAo Vmax
- PDA Vel (d)
- PDA Vel (s)
- MV DRa (lateral)
- MV DRa (Septal)
- MV E' Lateral Vel
- MV E' Septal Vel
- IVCT
- RAP
- VSD Vmax
- Hepatic V S Vel
- Hepatic V D Vel
- MV ARa (lateral)
- MV ARa (Septal)
- MV S' (lateral)
- MV S' (Septal)
- MV A' (lateral)
- MV A' (Septal)
- dP/dt
- 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
- MV VTI
- MV HR
- MV Vmax
- TV A Dur
- TV A Vel
- TV AccT
- TV DecT
- TV E Vel
- TV S'
- TV E'
- TV A'
- TV VTI
- TV HR
- TV Vmax
- TR VTI
- TR Vmax
- LVET (Doppler)
- LVOT AccT
- LVOT VTI
- LVOT Vmax
- LVPEP (Doppler)
- AV AccT

- AV DecT
- AAo Vmax
- AV VTI
- AV HR
- AV Vmax
- AR DecT
- AR PHT
- AR Ved
- AR Vmax
- AR VTI
- RVET (Doppler)
- RVPEP (Doppler)
- RVOT Vmax
- RVOT VTI
- RPA Vmax
- LPA Vmax
- MPA Vmax
- PR PHT
- PR VTI
- PR Ved
- PR Vmax
- PV AccT
- PV VTI
- PV HR
- PV Vmax
- PVein A Dur
- PVein A Vel
- PVein D Vel
- PVein D VTI
- PVein DecT
- PVein S Vel
- PVein S VTI
- CaVC Vel (Expir)
- CaVC Vel (Insp)
- CrVC Vel (Expir)
- CrVC Vel (Insp)
- ----------
- MVA (PHT)
- TVA (PHT)
- MV E/A
- TV E/A
- ----------
- 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)
- Qp/Qs
- LVOT Diam

- LVOT VTI
- RVOT Diam
- RVOT VTI
- 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

6.2.3 Reproduction

B-Mode

- Dog CRL
- Dog GS
- Dog HD
- Dog BD
- Feline BD
- Feline HD
- Equine GS-H
- Equine GS-V
- Fetal VL (Horse)
- Fetal VL (Pony)
- Bovine CRL
- Bovine TD
- Bovine HD
- Ovine CRL
- Ovine BPD
- Uterus D
- Endo
- Ovary L
- Ovary H
- Prostate L
- Prostate H
- Prostate W
- Testis L
- Testis H
- Testis W
- Follicle1 L
- Follicle2 L
- Follicle3 L
- Follicle4 L
- Follicle5 L
- Follicle6 L
- Follicle7 L
- Follicle8 L
- Follicle9 L
- Follicle10 L
- Follicle11 L
- Follicle12 L
- Follicle13 L
- Follicle14 L
- Follicle15 L
- Follicle16 L
- Ovarian Cyst1 d1
- Ovarian Cyst1 d2
- Ovarian Cyst1 d3
- Ovarian Cyst2 d1
- Ovarian Cyst2 d2
- Ovarian Cyst2 d3
- Ovarian Cyst3 d1
- Ovarian Cyst3 d2
- Ovarian Cyst3 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
- Breast Mass1 L
- Breast Mass1 H
- Breast Mass1 W
- Breast Mass2 L
- Breast Mass2 H
- Breast Mass2 W
- Breast Mass3 L
- Breast Mass3 H
- Breast Mass3 W
- Breast Mass4 L
- Breast Mass4 H
- Breast Mass4 W
- Breast Mass5 L
- Breast Mass5 H
- Breast Mass5 W
- Breast Mass6 L
- Breast Mass6 H
- Breast Mass6 W
- Breast Mass7 L
- Breast Mass7 H
- Breast Mass7 W
- Breast Mass8 L
- Breast Mass8 H
- Breast Mass8 W
- Breast Mass9 L
- Breast Mass9 H
- Breast Mass9 W
- Breast Mass10 L
- Breast Mass10 H
- Breast Mass10 W
- ----------
- Prostate
- Prostate L
- Prostate H
- Prostate W
- Testis
- Testis L
- Testis H
- Testis W
- Ovarian Cyst1
- Ovarian Cyst1 d1
- Ovarian Cyst1 d2
- Ovarian Cyst1 d3
- Ovarian Cyst2
- Ovarian Cyst2 d1
- Ovarian Cyst2 d2
- Ovarian Cyst2 d3
- Ovarian Cyst3
- Ovarian Cyst3 d1
- Ovarian Cyst3 d2
- Ovarian Cyst3 d3
- Testicular Mass1
- Testicular Mass1 d1
- Testicular Mass1 d2
- Testicular Mass1 d3
- Testicular Mass2
- Testicular Mass2 d1
- Testicular Mass2 d2
- Testicular Mass2 d3
- Testicular Mass3
- Testicular Mass3 d1
- Testicular Mass3 d2
- Testicular Mass3 d3
- Epididymis
- Epididymis L
- Epididymis H
- Epididymis W
- Breast Mass1
- Breast Mass1 L
- Breast Mass1 H
- Breast Mass1 W
- Breast Mass2
- Breast Mass2 L
- Breast Mass2 H
- Breast Mass2 W
- Breast Mass3

- Breast Mass3 L
- Breast Mass3 H
- Breast Mass3 W
- Breast Mass4
- Breast Mass4 L
- Breast Mass4 H
- Breast Mass4 W
- Breast Mass5
- Breast Mass5 L
- Breast Mass5 H
- Breast Mass5 W
- Breast Mass6
- Breast Mass6 L
- Breast Mass6 H
- Breast Mass6 W
- Breast Mass7
- Breast Mass7 L
- Breast Mass7 H
- Breast Mass7 W
- Breast Mass8
- Breast Mass8 L
- Breast Mass8 H
- Breast Mass8 W
- Breast Mass9
- Breast Mass9 L
- Breast Mass9 H
- Breast Mass9 W
- Breast Mass10
- Breast Mass10 L
- Breast Mass10 H
- Breast Mass10 W

M-Mode

- FHR

D-Mode

- FHR
- Testis A
- Testis V
- Epididymis A
- Epididymis V

6.2.4 Small Parts

B-Mode

- Thyroid L
- Thyroid H
- Thyroid W
- AdrenalTip T
- AdrenalTail T
- LymphNode1 L
- LymphNode1 T
- LymphNode2 L
- LymphNode2 T
- LymphNode3 L
- LymphNode3 T
- Jejunal1 L
- Jejunal1 T
- Jejunal2 L
- Jejunal2 T
- Medial Iliac1 L
- Medial Iliac1 T
- Medial Iliac2 L
- Medial Iliac2 T
- HepaticLymphNode L
- HepaticLymphNode T
- 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
- Thyroid Nodule1 d1
- Thyroid Nodule1 d2
- Thyroid Nodule1 d3
- Thyroid Nodule2 d1
- Thyroid Nodule2 d2
- Thyroid Nodule2 d3
- Thyroid Nodule3 d1
- Thyroid Nodule3 d2

- Thyroid Nodule3 d3
- Thyroid Cyst1 d1
- Thyroid Cyst1 d2
- Thyroid Cyst1 d3
- Thyroid Cyst2 d1
- Thyroid Cyst2 d2
- Thyroid Cyst2 d3
- Thyroid Cyst3 d1
- Thyroid Cyst3 d2
- Thyroid Cyst3 d3
- Adrenal L
- Adrenal H
- Adrenal W
- ----------
- Parathyroid 1
- L
- H
- W
- Parathyroid 2
- L
- H
- W
- LymphNode1
- LymphNode1 L
- LymphNode1 T
- LymphNode2
- LymphNode2 L
- LymphNode2 T
- LymphNode3
- LymphNode3 L
- LymphNode3 T
- Jejunal1
- Jejunal1 L
- Jejunal1 T
- Jejunal2
- Jejunal2 L
- Jejunal2 T
- Medial Iliac1
- Medial Iliac1 L
- Medial Iliac1 T
- Medial Iliac2
- Medial Iliac2 L
- Medial Iliac2 T
- HepaticLymphNode
- HepaticLymphNode L
- HepaticLymphNode T
- Thyroid
- Thyroid L
- Thyroid H
- Thyroid W
- 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
- Thyroid Nodule1
- Thyroid Nodule1 d1
- Thyroid Nodule1 d2
- Thyroid Nodule1 d3
- Thyroid Nodule2
- Thyroid Nodule2 d1
- Thyroid Nodule2 d2
- Thyroid Nodule2 d3
- Thyroid Nodule3
- Thyroid Nodule3 d1
- Thyroid Nodule3 d2
- Thyroid Nodule3 d3
- Thyroid Cyst1
- Thyroid Cyst1 d1
- Thyroid Cyst1 d2
- Thyroid Cyst1 d3
- Thyroid Cyst2
- Thyroid Cyst2 d1

- Thyroid Cyst2 d2
- Thyroid Cyst2 d3
- Thyroid Cyst3
- Thyroid Cyst3 d1
- Thyroid Cyst3 d2
- Thyroid Cyst3 d3
- Adrenal
- Adrenal L
- Adrenal H
- Adrenal W

D-Mode

- STA
- ITA
- Parathyroid 1
- Parathyroid 2

6.3 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

6.4 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 iReport (embedded)

- User-defined report template software

7 Exam Storage and Management

7.1 Exam storage

- 256GB hard drive. More than 188GB internal hard drive reserved for animal data storage
- Capable of storage up to approximately 314907 single frames (FRM format)
- Storage area
  - Pre-settable: image area, standard area, full-screen
  - Image area: 1000*790
  - Standard area: 1200*910
  - Full-screen: 1920*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, iNSert another template
- 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 iConnectivity

8.1 Ethernet Network 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 Reproduction SR
- DICOM Cardiac SR

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 the 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) system
  - For iOS powered smart device: DICOM is mandatory
  - For Android powered smart device: DICOM not necessary

8.5 MedTouch

- Connect Ultrasound machine to smart devices based on Android and iOS system, such as tablet PC or mobile phone. Remote control of Ultrasound machine and tutorial software iScanHelper study on smart devices
- Support Android and iOS powered smart devices
  - Android 4.0 and above
  - iOS 7.0 and above
- DICOM not necessary

8.6 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.

8.7 Net Storage

- Support sending images or exams to the shared directory of your PC server.

8.8 Security

- Anti-Virus: McAfee and Microsoft Defender
- VPN

9 Probes

9.1 Curved array

9.1.1 C5-1s

- Application: Abdomen (Canine, Equine, Bovine, Ovine), Reproduction (Canine, Equine, Bovine, Ovine)
- Bandwidth: 1.3–5.7MHz
- Depth: 4–40cm
- FOV (max): 61°
- Extended FOV: 101°
- Convex Radius: 60mm
- Physical Footprint: 76.5mm x 28mm
- Footprint: 64.9mm × 16.2mm
- B-mode Frequencies: 1.3–3.2, 1.9–4.6, 2.3–5.7MHz
- Harmonic Frequencies: 3.5, 4.0, 5.0, 6.0MHz
- Color Frequencies: 2.0, 2.5, 2.5, 2 (HR Flow) MHz
- PW Frequencies: 2.0, 2.5, 3.0MHz
- Biopsy Guide: NGB-022, available, multi angle, reusable

9.1.2 C6-2Gs

- Application: Abdomen (Canine, Equine, Bovine, Ovine), Reproduction (Canine, Equine, Bovine, Ovine)
- Bandwidth: 2.6–8.2MHz
- Depth: 4–40cm
- FOV (max): 82°
- Extended FOV: 132°
- Convex Radius: 20 mm
- Physical Footprint: 37.6mm x 19mm
- Footprint: 31.5mm x 11.2mm
- B-mode Frequencies: 2.6–4.8, 3.6–6.4, 3.8–8.2MHz
- Harmonic Frequencies: 4.0, 4.5, 5.0MHz
- Color Frequencies: 2.5, 3.0, 3.0MHz
- PW Frequencies: 2.5, 3.0, 4.0MHz
- Biopsy Guide: NGB-024, available, multi angle, reusable

9.1.3 C11-3s

- Application: Abdomen (Canine, Feline), Cardiology (Canine, Feline), Reproduction (Canine, Feline)
- Bandwidth: 2.6–12.8MHz
- Depth: 1.5–28.0cm
- FOV (max): 81°
- Extended FOV: 121°
- Convex Radius: 15mm
- Physical Footprint: 32.8mm × 25mm
- Footprint: 27.4mm × 8.4mm
- B-mode Frequencies: 2.6–6.5, 3.2–7.9, 4.7–12.8MHz
- Harmonic Frequencies: 7.0, 8.0, 9.0MHz
- Color Frequencies: 4.4, 5.0, 5.0MHz

- PW Frequencies: 4.4, 5.0, 5.7MHz
- Biopsy Guide: NGB-018, available, multi angle, reusable

9.2 Linear array

9.2.1 6LE5Vs

- Application: Reproduction (Equine, Bovine, Ovine)
- Bandwidth: 3.4–12MHz
- Depth: 1.5–3.5cm
- FOV (max): 4.76cm
- Steered Angle:
  - B: ±6°, ±10°
  - C/PW: ±6°, ±10°, ±20 °
- Physical Footprint: 57.9mm x 22mm
- Footprint: 52mm x 11mm
- B-mode Frequencies: 3.4–9.6, 5.4–11.5, 6.6–12MHz
- Harmonic Frequencies: 7.0, 8.0, 9.0MHz
- Color Frequencies: 4.4, 5.0, 5.7MHz
- PW Frequencies: 4.4, 5.0, 5.7MHz
- Biopsy Guide: none

9.2.2 L12-4s

- Application: Abdomen (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 3.0–13.0MHz
- Depth: 1.5–35.0cm
- FOV (max): 3.81cm
- Steered Angle:
  - B: ±6°, ±12°
  - C/PW: ±10°, ±20°, +/-30°
- Physical Footprint: 45.7mm x 10.9mm
- Footprint: 44.2mm x 8.5mm
- B-mode Frequencies: 3.0–9.6, 5.4–11.5, 6.6–13.0MHz
- Harmonic Frequencies: 8.0, 9.0, 10.0MHz
- Color Frequencies: 4.4, 5.0, 5.0, 5.7 (HR Flow) MHz
- PW Frequencies: 4.4, 5.0, 5.7MHz
- Biopsy Guide: NGB-007, available, multi angle, reusable

9.2.3 L14-6Ns

- Application: Abdomen (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 3.5–16MHz
- Depth: 1.5–28cm
- FOV (max): 3.81cm
- Steered Angle:
  - B: ±6°, ±12°
  - C/PW: ±10°, ±20°, ±30°
- Physical Footprint: 45.7mm x 10.9mm
- Footprint: 44.2mm x 8.5mm
- B-mode Frequencies: 3.5–11.6, 6.0–12.6, 7.6–16.0MHz
- Harmonic Frequencies: 8.0, 10.0, 12.0MHz
- Color Frequencies: 5.0, 5.7, 5.7, 6.2 (HR Flow) MHz
- PW Frequencies: 5.0, 5.7, 6.6MHz
- Biopsy Guide: NGB-007, available, multi angle, reusable

9.2.4 L16-4Hs

- Application: Abdomen (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 3.5–16MHz
- Depth: 1.5–28cm
- FOV (max): 2.53cm
- Steered Angle:
  - B: ±6°, ±12°
  - C/PW: ±10°, ±20°, ±30°
- Physical Footprint: 11.5mm x 38mm Oblique width (34.8mm Straight width)
- Footprint: 28.7mm x 5.5mm

- B-mode Frequencies: 3.5–11.6, 6.0–12.6, 6.6–16.0MHz
- Harmonic Frequencies: 8.0, 10.0, 12.0MHz
- Color Frequencies: 5.0, 5.7, 5.7, 6.2 (HR Flow) MHz
- PW Frequencies: 5.0, 5.7, 6.6MHz
- Biopsy Guide: none

9.2.5 L20-5s

- Application: Abdomen (Canine, Feline), MSK (Canine, Feline)
- Bandwidth: 6–23MHz
- Depth: 1–27cm
- FOV (max): 2.87cm
- Steered Angle:
  - B: ±6°, ±12°
  - C/PW: ±10°, ±20°, ±30°
- Physical Footprint: 42.23mm x 22.10mm
- Footprint: 31.5 mm x 4.5mm
- B-mode Frequencies: 6.0–12.6, 9.0–15.6, 11.5–23.0MHz
- Harmonic Frequencies: 12.0, 14.0, 16.0MHz
- Color Frequencies: 9.0, 11.0, 13.0, 13.3 (HR Flow) MHz
- PW Frequencies: 9.0, 11.0, 13.0MHz
- Biopsy Guide: none

9.3 Phased array

9.3.1 P8-2s

- Application: Cardiology (Canine, Feline), Abdomen (Canine, Feline)
- Bandwidth: 2.3–7.2MHz
- Depth: 2.0–31.0 cm
- FOV (max): 90°
- Physical Footprint: 30.5mm x 23.2mm
- Footprint: 19.5mm x 11mm
- B-mode Frequencies: 2.3–5.4, 2.8–6.4, 3.3–7.2MHz
- Harmonic Frequencies: 6.0, 6.5, 7.0MHz
- Color Frequencies: 2.7, 3.3, 4.0MHz; TDI 5.0, 6.2 MHz
- PW Frequencies: 2.7, 3.3, 4.0MHz; TDI 5.0, 6.2MHz
- CW Frequency: 2.5MHz
- Biopsy Guide: none

9.3.2 P10-4s

- Application: Cardiology (Canine, Feline), Abdomen (Canine, Feline)
- Bandwidth: 3.0–11.4MHz
- Depth: 2.0–16.5cm
- FOV (max): 90°
- Physical Footprint: 15.1mm x 10.2mm
- Footprint: 15.0mm x 9.1mm
- B-mode Frequencies: 3.0–6.8, 3.8–10.2, 4.6–11.4MHz
- Harmonic Frequencies: 7.5, 8.0, 9.0MHz
- Color Frequencies: 4.0, 5.0, 5.7MHz; TDI 5.7, 6.2MHz
- PW Frequencies: 4.0, 5.0, 5.7MHz; TDI 5.7, 6.2MHz
- CW Frequency: 5MHz
- Biopsy Guide: none

9.3.3 SP5-1s

- Application: Cardiology (Canine, Equine, Bovine, Ovine)
- Bandwidth: 1.0–5.0MHz
- Depth: 2.0–38.0cm
- FOV (max): 90°
- Physical Footprint: 38.2mm x 30.5mm
- Footprint: 23.4mm x 15.2mm
- B-mode Frequencies: 1.0–3.5, 2.0–4.0, 2.5–5.0MHz

- Harmonic Frequencies: 3.0, 3.4, 3.8MHz
- Color Frequencies: 2.0, 2.3, 2.5MHz; TDI 3.0, 3.8MHz
- PW Frequencies: 2.0, 2.3, 2.5MHz; TDI 2.5, 4.0MHz
- CW Frequency: 2MHz
- Biopsy Guide: NGB-011, available, multi angle, reusable

9.3.4 P8-2Ts

- Application: Cardiology (Canine, Feline)
- Bandwidth: 2.4–7.5MHz
- Depth: 2.0–31.0cm
- FOV (max): 90°
- Physical Footprint: 14mm x 12mm
- Footprint: 10.6mm x 10.6mm
- B-mode Frequencies: 2.4–5.4, 2.8–6.4, 3.3–7.5MHz
- Harmonic Frequencies: 6.0, 6.5, 7.0MHz
- Color Frequencies: 2.7, 3.3, 4.0MHz; TDI 5.0, 6.2MHz
- PW Frequencies: 2.7, 3.3, 4.0MHz; TDI 2.7, 5.0MHz
- CW Frequency: 2.5MHz
- Biopsy Guide: none

10 Peripheral Devices and Accessories

10.1 Probe extend module: PEM-51

- One extend three probe ports

10.2 Black/white digital video printer

- MITSUBISHI P95DW-N
- SONY UP-D897
- SONY UP-D898MD
- SONY UP-X898MD

10.3 Color digital video printer

- SONY UP-D25MD

10.4 Digital graph/text printer

- HP OFFICEJET PRO 8100

10.5 Footswitch

- USB port: 971-SWNOM (2-pedal/3-pedal)
- USB port: FS-81-SP (1-pedal)
- Support User-definable functions (Freeze, Save, Print)

10.6 Built-in Battery for Main Unit

- Replaceable and rechargeable lithium battery
- Full battery lasts more than 24h in standby mode
- Empty battery recharged to full in 4h
- Continuous work time: about 1.5 hour in B mode

10.7 Mobile Trolley

- UMT-500
  - Platform Height: 809-1059mm adjustable

10.8 Barcode reader

- 1-D barcode reader: SYMBOL LS2208
- 2-D barcode reader: SYMBOL DS4308
- HH1800

11 System Inputs and Outputs

11.1 I/O Port

- USB 3.0: 2 ports
- ECG: 1 port
- HDMI: 1 port

11.2 Video/Audio Extend port

- Video/Audio Extend module iDock51:
  - S-Video Output: 1port
  - VGA: 1 port
  - Audio Output: 1 port

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

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.