DP-50 Vet Series

Veterinary Diagnostic Ultrasound System

Specification

mindray animal care

1 System Description

The system is intended for veterinary use in ultrasound examination and diagnosis.

2 General Specification

2.1 Dimensions and Weight

- Size: 147±5mm×361±5mm×358±5 mm (Depth×Width×Height)
- Net Weight: 8.1±0.5kg (without battery, two probe ports)

2.2 Electrical Power

2.2.1 Input power

- Voltage: 100-240V ~
- Frequency: 50/60Hz
- Input current: 1.5- 0.8A

2.2.2 Battery

- Lithium-ion Battery Pack: 14.8V DC, 6600mAh
- Charge time: < 3 hours (connected on AC power supply, with the system powered off)
- Endurance time: > 120 min

2.3 Boot time

- Boot time: < 30 s
- Wake up time (from standby): < 10s

2.4 Operating Environment

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

2.5 Storage & Transportation Environment

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

3 Probe

3.1 Probe Types

- Convex array
- Linear array

3.2 Scanning Methods

- Electronic convex with extend FOV
- Electronic linear with slant scanning and trapezoid

4 System Configuration

4.1 Display

- 15-inch LCD, LED backlight, High-Resolution 1024 x 768
- Contrast & Brightness adjustable
- Screen Saver: Time presettable
- Angle adjustable: ≤60°

4.2 Control Panel

- Alphanumeric Keys
- Function Keys
- Knobs
- User-defined Keys: function presettable
- 8 segment TGC
- Trackball: Color & Speed presettable
- Key Backlight Brightness & Volume presettable

- Integrated Speakers
- Indicators: Power/Battery/Standby/HDD status

4.3 Handle

4.4 I/O Interfaces

- Transducer port: 2
- Power input port: 1 (Connect to the AC power supply)
- USB port: 4
- VGA OUT port: 1
- Video OUT: 1
- S-Video OUT: 1 (Separate video output)
- Ethernet port: 1 (Connect to network)
- Remote control port: 1
- Equipotential terminal: 1

4.5 System Language

- Software display and keyboard input available: Chinese/English/Russian/Czech /Polish
- Software display available only: German/Spanish/French/Italia n/Portuguese/Norwegian/Swe dish/Turkish/Indonesian
- Control panel overlay available: Chinese/German/Spanish/Fren ch/Italian/Portuguese/Russian/ Czech/Polish

4.6 Features

- Application categories
  - Abdomen
  - Cardiology
  - Small Parts
  - Vascular
  - Reproduction
- Multi-language screen display and control panel overlay
- Medsight
- Gel
- Power cord
- Probe holder
- Dust-proof cover
- Grounded Cable
- Video Printer Remote Cable
- IMT (Auto Calculation of Intima-Media Thickness)
- B mode
- M mode
- Free Xros M
- iScape View
- Color
- Power
- DICOM basic
- DICOM Worklist
- DICOM MPPS
- DICOM Query/Retrieve
- Keys for option functions
- PW
- Smart 3D
- Tissue Harmonic Imaging
- Phase Shift Harmonic Imaging
- Slant scanning for linear probes (2D Steer)
- Trapezoid Imaging for Linear Probe
- ExFOV Imaging for Convex Probe
- Display Mode:
  - B/C/D triplex mode
  - Dual live: B/C
  - Adjustable time line display format (V1:1, V1:2, V2:1, Full)
  - Single window
  - Dual-split: B/C, B/M, B/PW

- Quad-split
- iBeam (Spatial Compounding Imaging for Linear and Convex Probe)
- Multi-frequency probes for 2D imaging modes
- iClear (adaptive speckle suppression imaging for all probes)
- iTouch (B/M): Auto Optimization
- TSI (Tissue Specific Imaging)
- iZoom
- Spot Zoom and Pan Zoom
- ExFOV Imaging for Convex Probe
- iStation
- 1TB integrated hard disk
- Mobile trolley: UMT-150
  - Weight: 21.7±1 kg
  - Width: 494±10 mm
  - Depth: 670±10 mm
  - Height: selective (not available after installed): 1173±10 mm, 1233±10 mm, 2 levels
- Mobile trolley: UMT-160
  - Weight: 27±1 kg
  - Width: 616±10 mm
  - Depth: 702±10 mm
  - Height: selective (not available after installed): 1247±10 mm, 1147±10 mm, 2 levels
- Mobile trolley: UMT-170
  - Weight: 12.5±1 kg (standard configuration); 14.5±1 kg (full configuration)
  - Width: 505±20 mm
  - Depth: 536±20 mm
  - Height: selective (not available after installed): 775±20 mm, 863±20 mm, 915±20 mm, 3 levels
- Battery Pack
- External DVD-RW (For FDA region only)
- Footswitch:
  - 971-SWNOM (2-pedal or 3-pedal);
  - USB port: FS-81-SP (1-pedal) (For FDA region only)
- Carrying bag
- Network accessory package (For CE region only)

4.7 Peripherals Supported

- Black and White Video Printer
  - MITSUBISHI P93W-Z Analog
  - SONY UP-X898MD Analog
- Color Video Printer
  SONY UP-D25MD Digital
- Graph / text printer
  HP OFFICEJET PRO 8100
- LAN Accessory
- LPA11

5 Imaging Mode

5.1 B Mode

- Display Depth
  - Minimum: 0.9cm
  - Maximum: 38.8cm
- Frame rate (Max.): 400 fps
- Adjustable focus number: 4
- Adjustable focus positions (Max.): 16
- Digital processing channels: up to 4,128,768
- Magnification factor:

  - Pan Zoom: 80%-1000%
  - Spot Zoom: continuously adjustable
- iZoom: instant full screen view, two level.
- System dynamic range: 30~220dB, 5/step
- Gain: 0~100dB, 51steps
- TGC: 8
- Colorize: on, off
- Colorize map: off, 1~25
- Gray Map: 1-25, 1/step
- FOV size: continuously adjustable, convex transducer only
- IP: 1~8
- Persistence: 0~7
- R/L, U/D Flip
- Rotation: 0°, 90°, 180°, 270°
- Line Density: L, M, H, UH
- iTouch Bright: -12~12dB, 3db/step
- A.power: 32steps
- Smooth: 1~4
- TSI: General, Fat, Fluid, Muscle
- B Steer: 3 levels, linear transducer only
- Trapezoid: on, off, linear transducer only
- FOV Position: continuously adjustable, convex transducer only
- HScale: on, off
- Middle Line: on, off
- Gray Rejection: 0~5
- γ: 0~3
- Curve: adjustable
- Gray Invert: on, off
- iClear: on/off，1-4，1/step
- iBeam: on/off
- High FR: on, off (35C50EA/35C20EA THI)
- Auto Merge: on, off, linear probe, Dual display mode

5.2 M Mode

- Speed: 1~6
- IP: 1~8
- Edge Enhance: 0~14
- M Soften: 0~14
- Time Mark: on, off

5.3 Color Mode

- Frame rate (Max.): 260 fps
- PRF (kHz): 0.3 - 15.5KHz
- Flow velocities (cm/s, probe dependent): 5.0 - 100.0
- A.Power : 32 levels
- Gain: 0-100
- Baseline: -8-8，1/step
- Scale: 30 levels
- Steer: according to the POD
- ROI Width: random adjustable
- ROI Height: random adjustable
- ROI Center Depth: random adjustable
- Frequency: according to the POD
- Persistence: 0-4，1/step
- Smooth: 0-4，1/step
- Map: V0-V10; VV0-VV9
- WF: 0-7，1/step
- Priority0%-100%，10%/档
- Line Density L,M,H,UH
- Dual Live: On/Off
- Invert: On/Off
- B/C Align: On/Off
- Packet Size: 0-3，1/step

5.4 Power Mode

- A.Power: 32 levels

- Gain: 0-100，2/step
- Steer: same as Color
- Scale: 30 levels
- ROI Width: same as Color
- ROI Height: same as Color
- ROI Center Depth: same as Color
- Frequency: according to the POD
- Persistence: 0-4，1/step
- Smooth: 0-4，1/step
- Dynamic Range: 10-70，5/step
- Map: P0-P3 dP0-dP3
- Priority: 0%-100%，10%/step
- WF: 0-7，1/step
- 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

5.5 PW Mode

- PRF: 0.7 – 24.0kHz
- Velocity: 4.1-369.60 cm/s
- Baseline: -4~4
- Audio: 0~100%, 2%/step
- Angle: -89°~89°
- Quick Angle: -60，0，60
- SVD: continuously
- Speed: 1~6
- iTouch (PW): on/off
- SV:
  - 0.5~3 mm, 0.5 mm/step
  - 3~5 mm, 1 mm/step
  - 5~10 mm, 2.5 mm/step
  - 10~20 mm, 5 mm/step
- Dynamic range: 24~72, 2/step
- WF: 0~6
- Duplex/Triplex: on/ off
- T/F Res: 0~4
- Auto Calc: on/ off
- Auto Calc Cycle: 1~5
- Auto Calc Param: setting auto spectrum calculation results
- Trace Area: Above/ Below/ All

5.6 Smart 3D

- Reset: reset all, reset curve, reset orientation
- Accept VOI: on/off
- Render modes: Surface, Max, Min, X-ray
- Direction: D/U, U/D, L/R, R/L, F/B, B/F (D: down, U: up, L: left, R: right, F: front, B: back)
- Threshold: 0%-100%, 1%/step
- Opacity: 0%-100%, 5%/step
- Smooth: 0-10
- Brightness: 0%-100%, 2%/step
- Contrast: 0%-100%, 2%/step
- Tint: 0-25
- iClear: Off, 1-4
- Rotation control: X, Y, Z axis

5.7 Free Xros M Mode

- Tint map: Off; 1-25
- Gray map: 1-25
- Display format: V1:2,V2:1,V1:1

6 Display Annotations

- Manufacturer logo
- Hospital name: up to 64 characters can be displayed
- Exam date: 3 types selectable, YY/MM/DD, MM/DD/YY, DD/MM/YY
- Exam time: 2 formats
- Acoustic output indices: MI, TIC, TIS, TIB
- Freeze icon
- Gender
- Age

- Animal: Dog/ Cat/ Equine/ Bovine/ Ovine /Other
- Animal ID: up to 64 characters can be displayed
- Name: up to 64 characters can be displayed
- No.
- Host
- Probe model
- Current exam mode
- Accession#
- Operator: up to 64 characters can be displayed
- Menu
- Image
- Probe orientation mark
- Time line
- Coordinate axis, including depth, time, frequency
- TGC curve
- Focus
- Comment
- Body Mark
- Measure caliper
- Gray scale bar
- Thumbnail
- Help information
- Status icons
- Biopsy guideline
- Measure result window (up to 8 results can be displayed)
- Image parameters

7 Comments and Body Mark

7.1 Comment

7.1.1 Text comment

- Comment text for all exam modes
- Custom: add/delete/edit comment units in current menu.

7.1.2 Arrow

- Arrow Size
- Arrow position
- Arrow orientation

7.2 Body Mark

- Application package
- Body marks for all exam modes:
- Custom: import/delete body marks

8 Storage/ Connection

- 1TB integrated hard disk
- External DVD-R/W
- 4 USB ports
- Image archive on hard disk, DVD, Medsight and iStorage, temporary saving in cine memory
- Clipboard
- Thumbnail
- Single-frame image formats: BMP, JPG, TIFF, DCM, FRM
- Multi-frame images formats: AVI, DCM, CIN
- Storage area:
  - Image area: 640×522
  - Standard area: 800×600
  - Full-screen: 1024×768
- iVision: Demo player
- Cine review: Auto, Manual (auto review segment can be set), supports linked cine review for 2D, M images.
- Cine memory capacity (Max.)
  - Clip length presettable: 1-60s
  - B mode: 8632 frames

  - M mode: 90.5 s
  - PW: 84.8 s
  - Color: 1894 frames
- Max. frames in HDD
  - BMP: > 406000
  - FRM: > 118000
- iStorage
- DICOM:
  - DICOM Basic
  - Task management
  - DICOM storage
  - DICOM print
  - DICOM storage commitment
  - DICOM media storage (including DICOM DIR)
  - DICOM Worklist
  - DICOM MPPS
  - DICOM Query/Retrieve
- MedSight
  - An interactive app that lets you transfer clinical images straight from Mindray Animal Medical 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 Android/iOS powered system.

9 iStation

- Intelligent animal data management system
- Integrated search engine for animal data
- Detailed animal information view
- Intelligent data backup/ restore
- Animal data/ image sending
- Animal data deleting
- Exam managing: create new exam, activate exam and continue exam
- Recycle Bin
- Task manager

10 Measure/Calc/Study

10.1 General

10.1.1 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
- Color Vel Profile
- IMT
- ----------
- Volume
- Volume(Ellipse)
- Volume(E+Dist.)
- Ratio(D)
- Ratio(Ellipse)
- Ratio(Spline)
- Ratio(Cross)

- ----------
- Volume
- Volume
- Volume(Ellipse)
- Volume(E+Dist.)
- Ratio(A)
- Ratio(Trace)
- Ratio(Ellipse)
- Ratio(Spline)
- Ratio(Cross)
- Volume Flow
- Vas Area
- TAMEAN
- TAMAX

10.1.2 M-Mode

- HR
- Slope
- Distance
- Time
- Velocity

10.1.3 D-Mode

- PS/ED
- Vel
- HR
- Time
- Acceleration
- D Trace
- ----------
- Volume Flow
- Vas Area
- TAMEAN
- TAMAX

10.2 Application

10.2.1 Abdomen

B-Mode

- Liver
- Renal L
- Renal H
- Renal W
- Cortex
- Adrenal L
- Adrenal H
- Adrenal W
- CBD
- Portal V Diam
- CHD
- GB L
- GB H
- GB wall th
- Panc duct
- Panc head
- Panc body
- Panc tail
- Spleen
- Aorta Diam
- Aorta Bif
- Iliac Diam
- Pre-BL L
- Pre-BL H
- Pre-BL W
- Post-BL L
- Post-BL H
- Post-BL W
- Ureter
- ----------
- Renal Vol
- Pre-BL Vol
- Post-BL Vol
- Mictur.Vol
- ----------
- Kidney
- Renal L
- Renal H
- Renal W
- Cortex
- Bladder
- Pre-BL L
- Pre-BL W
- Pre-BL H

- Post-BL L
- Post-BL W
- Post-BL H
- Adrenal
- Adrenal L
- Adrenal W
- Adrenal H
- Smart Bladder
- XS Bladder
- Sag Bladder

D-Mode

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

10.2.2 Bovine OB

- Bovine CRL
- Bovine TD
- Bovine HD

10.2.3 Dog OB

- Dog CRL
- Dog GS
- Dog HD
- Dog BD

10.2.4 Equine OB

- Equine GS-H
- Equine GS-V

10.2.5 Feline OB

- Feline BD
- Feline HD

10.2.6 Ovine OB

- Ovine CRL
- Ovine BPD

10.2.7 Cardiology

B-Mode

- LA Diam(2D)
- LA Major
- LA Minor
- RA Major
- RA Minor
- LV Major
- LV Minor
- RV Major
- RV Minor
- LA Area
- RA Area
- LV Area(d)
- LV Area(s)
- RV Area(d)
- RV Area(s)
- LVIDd(2D)
- LVIDs(2D)
- LVIDd(Teich-2D)
- LVIDs(Teich-2D)
- LVIDd(Cube-2D)
- LVIDs(Cube-2D)
- LVIDd(Gibson-2D)
- LVIDs(Gibson-2D)
- RVDd(2D)
- RVDs(2D)
- LVPWd(2D)

- LVPWs(2D)
- RVAWd(2D)
- RVAWs(2D)
- IVSd(2D)
- IVSs(2D)
- Ao Diam(2D)
- Ao Arch Diam(2D)
- Ao Asc Diam(2D)
- Ao Desc Diam(2D)
- Ao Isthmus(2D)
- Ao st junct(2D)
- Ao Sinus Diam(2D)
- Duct Art Diam
- Pre Ductal
- Post Ductal
- ACS(2D)
- LVOT Diam(2D)
- AV Diam
- AVA
- PV Diam
- LPA Diam(2D)
- RPA Diam(2D)
- MPA Diam(2D)
- RVOT Diam(2D)
- MV Diam
- MVA
- MCS(2D)
- MV EPSS(2D)
- TV Diam
- TVA
- IVC Diam(Insp)
- IVC Diam(Expir)
- SVC Diam(Insp)
- SVC Diam(Expir)
- LCA Diam
- RCA Diam
- VSD Diam
- ASD Diam
- PDA Diam
- PFO Diam
- PEd(2D)
- PEs(2D)
- Diastole(Teich-2D)
- Systole(Teich-2D)
- Diastole(Cube-2D)
- Systole(Cube-2D)
- Diastole(Gibson-2D)
- Systole(Gibson-2D)
- HR(Teich 2D)
- HR(Cube 2D)
- HR(Gibson 2D)
- ----------
- LA/Ao(2D)
- Ao/LA(2D)
- ----------
- S-P Ellipse
    - LVLd apical(SP Ellipse)
    - LVAd apical(SP Ellipse)
    - LVLs apical(SP Ellipse)
    - LVAs apical(SP Ellipse)
    - HR(SP Ellipse)
- B-P Ellipse
    - LVIDd(BP Ellipse)
    - LVIDs(BP Ellipse)
    - LVAd sax MV(BP Ellipse)
    - LVAs sax MV(BP Ellipse)
    - LVAd apical(BP Ellipse)
    - LVAs apical(BP Ellipse)
    - HR(BP Ellipse)
- Bullet
    - LVLd apical(Bullet)
    - LVLs apical(Bullet)
    - LVAd sax MV(Bullet)
    - LVAs sax MV(Bullet)
    - HR(Bullet)
- Mod.Simpson
    - LVLd apical(Simp)
    - LVLs apical(Simp)
    - LVAd sax MV(Simp)
    - LVAs sax MV(Simp)

- LVAd sax PM(Simp)
- LVAs sax PM(Simp)
- HR(Mod Simp)
- Simp SP(A2C)
- EDV(Simp SP-A2C)
- ESV(Simp SP-A2C)
- HR(Simp SP A2C)
- Simp SP(A4C)
- EDV(Simp SP-A4C)
- ESV(Simp SP-A4C)
- HR(Simp SP A4C)
- Simpson BP
- EDV(Simp BP-A2C)
- ESV(Simp BP-A2C)
- EDV(Simp BP-A4C)
- ESV(Simp BP-A4C)
- HR(Simp BP)
- Cube(2D)
- LVIDd(Cube-2D)
- LVIDs(Cube-2D)
- HR(Cube 2D)
- Teichholz(2D)
- LVIDd(Teich-2D)
- LVIDs(Teich-2D)
- HR(Teich 2D)
- Gibson(2D)
- LVIDd(Gibson-2D)
- LVIDs(Gibson-2D)
- HR(Gibson 2D)
- LA Vol(A-L)
- LA Diam(LA Vol A-L)
- LAA(A2C)
- LAA(A4C)
- LA Vol(Simp)
- LA Vol(A2C)
- LA Vol(A4C)
- RA Vol(Simp)
- RA Vol(A4C)
- LV Mass(Cube-2D)
- IVSd(LV Mass Cube-2D)
- LVIDd(LV Mass Cube-2D)
- LVPWd(LV Mass Cube-2D)
- LV Mass(T-E)
- LVAd sax Epi(LV Mass T-E)
- LVAd sax Endo(LV Mass T-E)
- a
- d
- LV Mass(A-L)
- LVAd sax Epi(LV Mass A-L)
- LVAd sax Endo(LV Mass A-L)
- LVLd apical(LV Mass A-L)
- MVA(VTI)
- LVOT Diam(MVA VTI)
- LVOT VTI(MVA VTI)
- MV VTI(MVA VTI)
- AVA(VTI)
- LVOT Diam(AVA VTI)
- LVOT VTI(AVA VTI)
- AV VTI(AVA VTI)
- Qp/Qs
- AV Diam(Qp/Qs)
- AV VTI(Qp/Qs)
- AV HR(Qp/Qs)
- PV Diam(Qp/Qs)
- PV VTI(Qp/Qs)
- PV HR(Qp/Qs)
- PISA MR
- MR Rad
- MR Als Vel
- MR VTI(PISA MR)
- PISA AR
- AR Rad
- AR Als Vel
- AR VTI(PISA AR)
- PISA TR
- TR Rad
- TR Als Vel
- TR VTI(PISA TR)

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

M-Mode

- LA Diam(M)
- LVIDd(M)
- LVIDs(M)
- LVIDd(Teich-M)
- LVIDs(Teich-M)
- LVIDd(Cube-M)
- LVIDs(Cube-M)
- LVIDd(Gibson-M)
- LVIDs(Gibson-M)
- RVDd(M)
- RVDs(M)
- LVPWd(M)
- LVPWs(M)
- RVAWd(M)
- RVAWs(M)
- IVSd(M)
- IVSs(M)
- Ao Diam(M)
- Ao Arch Diam(M)
- Ao Asc Diam(M)
- Ao Desc Diam(M)
- Ao Isthmus(M)
- Ao st junct(M)
- Ao Sinus Diam(M)
- LVOT Diam(M)
- ACS(M)
- LPA Diam(M)
- RPA Diam(M)
- MPA Diam(M)
- RVOT Diam(M)
- MV E Amp
- MV A Amp
- MV E-F Slope
- MV D-E Slope
- MV DE
- MCS(M)
- MV EPSS(M)
- PEd(M)
- PEs(M)
- LVPEP(M)
- LVET(M)
- RVPEP(M)
- RVET(M)
- Diastole(Teich-M)
- Systole(Teich-M)
- Diastole(Cube-M)
- Systole(Cube-M)
- Diastole(Gibson-M)
- Systole(Gibson-M)
- HR(Teich M)
- HR(Cube M)
- HR(Gibson M)
- HR
- ----------
- LA/Ao(M)
- Ao/LA(M)
- ----------
- LV Tei Index(M)
- MV C-O dur(M)
- LVET(LV Tei Index-M)
- Cube(M)
- LVIDd(Cube-M)
- LVIDs(Cube-M)
- HR(Cube M)
- Teichholz(M)
- LVIDd(Teich-M)
- LVIDs(Teich-M)
- HR(Teich M)
- Gibson(M)
- LVIDd(Gibson-M)
- LVIDs(Gibson-M)
- HR(Gibson M)
- LV Mass(Cube-M)
- IVSd(LV Mass Cube-M)
- LVIDd(LV Mass Cube-M)

- LVPWd(LV Mass Cube-M)

D-Mode

- MV Vmax
- MV E Vel
- MV A Vel
- MV E VTI
- MV A VTI
- MV VTI
- MV AccT
- MV DecT
- IVRT
- IVCT
- MV E Dur
- MV A Dur
- LVOT Vmax
- LVOT VTI
- LVOT AccT
- AAo Vmax
- DAo Vmax
- AV Vmax
- AV VTI
- LVPEP(Doppler)
- LVET(Doppler)
- AV AccT
- AV DecT
- RVET(Doppler)
- RVPEP(Doppler)
- TV Vmax
- TV E Vel
- TV A Vel
- TV VTI
- TV AccT
- TV DecT
- TV A Dur
- RVOT Vmax
- RVOT VTI
- PV Vmax
- PV VTI
- PV AccT
- MPA Vmax
- RPA Vmax
- LPA Vmax
- PVein S Vel
- PVein D Vel
- PVein A Vel
- PVein A Dur
- PVein S VTI
- PVein D VTI
- PVein DecT
- IVC Vel(Insp)
- IVC Vel(Expir)
- SVC Vel(Insp)
- SVC Vel(Expir)
- MR Vmax
- MR VTI
- MS Vmax
- dP/dt
- AR Vmax
- AR VTI
- AR DecT
- AR PHT
- AR Ved
- TR Vmax
- TR Vmax(RVSP)
- TR VTI
- PR Vmax
- PR VTI
- PR PHT
- PR Ved
- RAP
- VSD Vmax
- ASD Vmax
- PDA Vel(d)
- PDA Vel(s)
- Coarc Pre-Duct
- Coarc Post-Duct
- Ea(medial)
- Aa(medial)
- ARa(medial)
- DRa(medial)

- Sa(medial)
- Ea(lateral)
- Aa(lateral)
- ARa(lateral)
- DRa(lateral)
- Sa(lateral)
- HR
- AV HR
- MV HR
- TV HR
- PV HR
- LVOT HR
- RVOT HR
- ----------
- MV E/A
- MVA(PHT)
- TV E/A
- TVA(PHT)
- ----------
- MVA(VTI)
- LVOT Diam(MVA VTI)
- LVOT VTI(MVA VTI)
- MV VTI(MVA VTI)
- AVA(VTI)
- LVOT Diam(AVA VTI)
- LVOT VTI(AVA VTI)
- AV VTI(AVA VTI)
- LV Tei Index(Doppler)
- MV C-O dur(Doppler)
- LVET(LV Tei Index-Doppler)
- RVSP
- TR Vmax(RVSP)
- RAP
- PAEDP
- PR Ved(PAEDP)
- RAP
- RV Tei Index
- TV C-O dur
- RVET(RV Tei Index)
- Qp/Qs
- AV Diam(Qp/Qs)
- AV VTI(Qp/Qs)
- AV HR(Qp/Qs)
- PV Diam(Qp/Qs)
- PV VTI(Qp/Qs)
- PV HR(Qp/Qs)
- PISA MR
- MR Rad
- MR Als Vel
- MR VTI(PISA MR)
- PISA AR
- AR Rad
- AR Als Vel
- AR VTI(PISA AR)
- PISA TR
- TR Rad
- TR Als Vel
- TR VTI(PISA TR)
- PISA PR
- PR Rad
- PR Als Vel
- PR VTI(PISA PR)

10.2.8 Vascular

B-Mode

- CCA IMT
- Bulb IMT
- ICA IMT
- ECA IMT
- ----------
- Stenosis D
- Stenosis A
- ----------
- IMT
- CCA IMT
- Bulb IMT
- ICA IMT
- ECA IMT

D-Mode

- CCA

- Bulb
- ICA
- ECA
- Vert A
- Innom A
- Subclav A
- Axill A
- Brachial A
- Ulnar A
- Radial A
- Subclav V
- Axill V
- Cephalic V
- Basilic V
- Ulnar V
- Radial V
- C.Iliac A
- Ex.Iliac A
- CFA
- SFA
- Pop A
- TP Trunk A
- Peroneal A
- P.Tib A
- A.Tib A
- Dors.Ped A
- C.Iliac V
- Ex.Iliac V
- Femoral V
- Saph V
- Pop V
- TP Trunk V
- Sural V
- Soleal V
- Peroneal V
- P.Tib V
- A.Tib V
- IIA
- DFA
- Brachial V
- IIV
- CFV
- SFV
- DFV
- SSV
- ASP
- BSP
- ----------
- ICA/CCA
- ----------
- ABI
- ASP
- BSP

10.2.9 Small Parts

B-Mode

- Thyroid L
- Thyroid H
- Thyroid W
- Isthmus H
- Testicular L
- Testicular H
- Testicular W
- Breast Mass1 d1
- Breast Mass1 d2
- Breast Mass1 d3
- Breast Mass2 d1
- Breast Mass2 d2
- Breast Mass2 d3
- Breast Mass3 d1
- Breast Mass3 d2
- Breast Mass3 d3
- 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 Vol
- ----------
- Thyroid
- Thyroid L
- Thyroid W
- Thyroid H
- Testis
- Testicular L
- Testicular W
- Testicular H
- Breast Mass1
- Breast Mass1 d1
- Breast Mass1 d2
- Breast Mass1 d3
- Breast Mass2
- Breast Mass2 d1
- Breast Mass2 d2
- Breast Mass2 d3
- Breast Mass3
- Breast Mass3 d1
- Breast Mass3 d2
- Breast Mass3 d3
- 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

D-Mode

- STA
- ITA

10.3 Auto Calculation

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

10.4 Diagnostic Report

- View/add images
- Data edit
- Print
- Import
- export (to PDF/RTF file)
- View history report

11 Probe

11.1 Curved array

11.1.1 35C50EA

- Bandwidth: 1.8-6 MHz
- Depth: 2.8-37.0cm
- FOV (max): 70°
- Extended FOV: 82°
- B-mode Frequencies: 2.0, 3.5, 4.5, 5.0MHz
- Harmonic Frequencies: 5.0, 6.0MHz

- Doppler Frequencies: 2.5, 3.0 MHz;

11.1.2 65C15EAV

- Bandwidth: 3-11.2MHz
- Depth: 0.9-29.6cm
- FOV (max): 96°
- Extended FOV: 108°
- B-mode Frequencies: 5, 6.5, 7.5, 8.5MHz
- Harmonic Frequencies: 8.0, 9.0 MHz
- Doppler Frequencies: 4.4, 5.0MHz

11.1.3 65EB10EA

- Bandwidth: 3-12.5MHz
- Depth: 0.9-29.6cm
- FOV (max): 140°
- Extended FOV: 152°
- B-mode Frequencies: 5, 6.5, 7.5, 8.5MHz
- Harmonic Frequencies: 8.0, 9.0 MHz
- Doppler Frequencies: 4.0, 5.0 MHz;

11.1.4 35C20EA (For CE region only)

- Bandwidth: 1.7-6MHz
- Depth: 2.8-37.0cm
- FOV (max): 90°
- Extended FOV: 110°
- B-mode Frequencies: 2.5, 3.5, 4.5, 5MHz
- Harmonic Frequencies: 5.0, 6.0MHz
- Doppler Frequencies: 2.5, 3.0MHz; TDI: 2.5, 3.0MHz

11.1.5 65EC10ED (For CE region only)

- Bandwidth: 3-11MHz
- Depth: 0.9-29.6cm
- FOV (max): 126°
- Extended FOV: 138°
- B-mode Frequencies: 5, 6.5, 7.5, 8.5MHz
- Harmonic Frequencies: 8.0, 9.0MHz
- Doppler Frequencies: 4.0, 5.0MHz;

11.2 Linear array

11.2.1 75L38EA

- Bandwidth: 3.4-12.9MHz
- Field of View (max): 3.79cm
- Steered Angle: ±6°
- B-mode Frequencies: 5, 7.5, 8.5, 10MHz
- Harmonic Frequencies: 8.0, 10.0 MHz
- Doppler Frequencies: 5.0, 5.7 MHz

11.2.2 75L53EA

- Bandwidth: 3-12.6MHz
- Depth: 0.9-29.6cm
- Field of View (max): 5.06cm
- Steered Angle: ±6°
- B-mode Frequencies: 5, 7.5, 8.5, 10MHz
- Harmonic Frequencies: 8.0, 10.0 MHz
- Doppler Frequencies: 5.0， 5.7 MHz

11.2.3 10L24EA

- Bandwidth: 3.7-16.2MHz
- Depth: 0.9-29.6cm
- Field of View (max): 2.36cm
- Steered Angle: ±6°
- B-mode Frequencies: 8, 10, 12, 14 MHz
- Harmonic Frequencies: 10.0, 12.0 MHz
- Doppler Frequencies: 5.7, 6.6 MHz

11.2.4 50L60EAV

- **Bandwidth: 2.2-8.5MHz**
- **Depth: 0.9-29.6cm**
- **Field of View (max): 5.88cm**
- **Steered Angle: ±6°**
- **B-mode Frequencies: 4, 5, 6, 7MHz**
- **Harmonic Frequencies: 6.0, 7.0 MHz**
- **Doppler Frequencies: 3.5，4.0 MHz**

11.2.5 75L50EAV

- **Bandwidth: 3-12MHz**
- **Depth: 0.9-29.6cm**
- **Field of View (max): 4.75cm**
- **Steered Angle: ±6°**
- **B-mode Frequencies: 5, 7.5, 8.5, 10MHz**
- **Harmonic Frequencies: 8.0, 10.0 MHz**
- **Doppler Frequencies: 5.0, 5.7MHz**

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.

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**
- **EN 60601-2-37 and IEC60601-2-37**

12.3 CE declaration

The device is fully in conformance with the EC Low Voltage Directive (2014/35/EU) and EC Directive of Electromagnetic Compatibility (2014/30/EU).