

DC-N3

Color Doppler Ultrasound System

Datasheet

Release 1.0



mindray
healthcare within reach

1 System Overview

1.1 Application

- Abdomen
- Obstetrics
- Gynecology
- Small parts
- Vascular
- Urology
- Musculoskeletal
- Orthopedics
- Emergency Medicine
- Nerve
- Cardiology
- Trans-cranial
- Pediatrics
- Others

1.2 Transducer types

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

1.3 Imaging modes

- B-Mode
- Tissue Harmonic and PSH (Phase Shift Harmonic Imaging)
- M-Mode/Color M-mode
- Free Xros M (Anatomical M-mode)
- Free Xros CM (Curved Anatomical M-mode)
- Color Doppler Imaging
- Power Doppler Imaging/Directional PDI
- Pulsed Wave Doppler
- Continuous Wave Doppler
- TDI (Tissue Doppler Imaging)
- 4D
- iScape™ View (Panoramic Imaging)

1.4 Standard features

- B-Mode
- THI and PSH
- M-Mode
- Color M-mode
- Color Doppler Imaging
- Power Doppler Imaging and Directional PDI
- Pulsed Wave Doppler

- HPRF (High Pulse Repeat Frequency)
- iClear™ (Speckle Suppression Imaging)
- iBeam™ (Spatial Compounding Imaging)
- iTouch™ (Auto Optimization)
- Zoom/iZoom™ (Full Screen Zoom)
- FCI (Frequency Compounding Imaging)
- B steer
- ExFOV Imaging
- iStation™
- iVision™
- Integrated 320G hard drive
- 3 active probe ports
- DVD RW Driver
- 5 USB ports
- Share Service Application Package (Abdominal, Obstetrical, Gynecological, Cardiac, Small Parts, Urological, Vascular, Pediatric Packages)
- Auto Doppler Calculation
- UltraAssist tool
 - iStorage (Direct Network Storage)
 - iMeasurement (User-Defined Measurement & Calculation tool off line)
 - iReport (User-Defined Report Template tool off line)
- On-line e-Manual

1.5 Optional features

- High density probe port
- Continuous Wave Doppler
- Free Xros M (Anatomical M-mode)
- Free Xros CM (Curved Anatomical M-mode)
- iScape™ View
- IMT (Auto Intima-Media Thickness Evaluation)
- Smart OB (Auto OB measurement)
- Smart 3D
- 3D/4D (Static 3D, Real time 4D)
- iPage™ (Multislice mode, for 4D and Static 3D)
- TDI (TVI, TEI, TVD, TVM)
- TDI QA (Quantitative Analysis)
- Built-in Battery: LI231002A
- ECG module

- iRoam (Wireless Network Adapter)
- Footswitch: 971-SWNOM, SP-997-350
- Bar Code reader
- Nerve Application Package
- Emergency Medicine Application Package
- DICOM Basic (including DICOM Task Management, Storage, Print, Storage Commitment, Media Storage)
- DICOM Worklist
- DICOM MPPS (Modality Performed Procedure Step)
- DICOM OB/GYN structured report
- DICOM Vascular structured report
- DICOM Cardiac structured report
- DICOM Query/Retrieve

1.6 Language support

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

2 Physical Specification

2.1 Dimension and weight

- Width: 500mm
- Height: 1415-1275mm
- Depth: 690-740mm (when the height from max. to min.)
- Weight: approx. 62kg (Without options)

2.2 Monitor

- 15-inch high resolution color LCD monitor
- Resolution: 1024×768
- Brightness adjustable
- Screen saver
- Monitor: tilt of 20°up, 90°down, and

swivel of 90° right, 90° left

2.3 Probe port

- 4 port connectors

2.4 Electrical power

- AC adapter Input:
 - Voltage:100-240V~
 - Frequency: 50/60Hz
 - Power consumption: 600VA
- Built-in Battery: Lithium-ion Battery 14.8V, 6600mAh

2.5 Operating Environment

- Ambient temperature: 0-40 °C (10-40°C only for D6-2 & D6-2A probe)
- Relative humidity: 30%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.6 Storage & Transportation Environment

- Ambient temperature: -20~55 °C, -10~60 °C (only for D6-2 probe)
- Relative humidity: 30%-95% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

3 User Interface

3.1 Control panel

- Power/Battery indicator
- Alphanumeric keys
- Function keys
- Knobs
- Soft key operation
- Backlight keys, ensuring accurate work in the dark room
- 8-segment TGC control
- Programmable keys, available for user-defined functions
- Trackball, sensitivity adjustment
- Key brightness adjustment
- Integrated speakers, audio volume adjustment
- Independent rotation and up/down of control panel
 - Rotate: $\pm 45^\circ$ (from center)
 - Down/Up: 775-915mm (140mm range)

3.2 System boot-up

- Boot-up in about 33 sec
- Shut down in about 17sec



- Boot-up from standby mode in about 8 sec
- Shut down from standby mode in about 6 sec

3.3 Comments

- Support text input and arrow
- Adjustable text size, arrow size and direction
- Support home position
- Covers various application
- User customizable

3.4 Bodymark

- More than 140 bodymarks for versatile application
- User customizable

3.5 Screen information*

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

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

4 Imaging Parameters

4.1 Overview

- Echo-enriched Beamformer
- Up to 1536 channels
- 4-beam forming

4.2 B-mode

- Display formats: Single(B), Dual(B+B), Quad(4B)
- iClear™: Off; On, 1-4 steps

- iBeam™: Off/On
- iTouch™: Auto optimization (TGC, Gain)
- Frequency (depend on probe)
- B steer: available on linear transducers
- ExFOV: extended FOV available on convex, linear and volume transducers
- Depth: 0.9-38.8cm (depend on transducer)
- Frame rate (max): 400f/s
- Acoustic output power: 7%-100%
- TGC: 8 pods on control panel
- Dynamic range: 30-240, 5/step
- Gain: 0-100, 1-2/step
- Focus number: 1-4, adjustable
- Focus position: Max. 16, adjustable
- FOV (Field of View): continuously adjustable
- Line density: L/M/H/UH
- Persistence: 0-7, 8 steps
- Horizontal Scale: on/off
- L/R flip: Left/Right
- U/D flip: Up/Down
- Rotation: 0°, 90°, 180°, 270°
- TSI (Tissue Specific Imaging): general/muscle/fluid/fat
- Gray Map: 8 types
- Tint map: off; 16 types

4.3 THI and PSH

- Available on all types of transducers
- Patent PSH technology, obtains purer harmonic, better contrast resolution
- iClear™ available

4.4 M-mode

- Display formats: V2:3, V3:2, V3:1, H2:3, Full (V: vertical, H: horizontal)
- Color M-mode available
- Acoustic output power: 7%-100%
- Dynamic range: 30-240, 5/step
- Gain: 0-100, 1-2/step
- Speed: 1-6, 6 steps
- M soften: 0-14, 1/step
- Tint map: off; 16 types
- Gray Map: 8 types
- Edge enhance: 0-3, 1/step

4.5 Free Xros M (option)

- Display formats: V2:3, V3:2, V3:1, H2:3,

(V: vertical, H: horizontal)

- Color Free Xros M available
- Up to 3 lines
- Acoustic output power: 7%-100%
- Gain: 0-100, 1-2/step
- Speed: 1-6, 6 steps
- Tint map: off; 16 types
- Gray Map: 8 types

4.6 Free Xros CM (option)

- Display formats: V2:3, V3:2, V3:1, H2:3,
(V: vertical, H: horizontal)
- Acoustic output power: 7%-100%
- Gain: 0-100, 1-2/step
- Speed: 1-6, 6 steps
- Tint map: off; 16 types
- Gray Map: 8 types

4.7 Color Doppler Imaging

- Dual live
- iTouch™: Auto optimization (Gain)
- Frequency (depend on probe)
- Max. velocity: 199.9cm/s
- Steer: max. 20° (linear transducer)
- Max. frame rate: 268f/s
- Acoustic output power: 7%-100%
- Gain: 0-100, 2/step
- ROI size/position: adjustable
- Scale: 30 steps (depend on exam mode)
- Baseline: -8~+8, 17 steps
- Wall filter: 0-7, 8 steps
- PRF: max. 7.8kHz
- Packet size: 0-3, 4 steps
- Velocity tag: on/off
- Smooth: 0-4, 5 steps
- B/C Align: on/off
- Priority: 0%-100%, 10%/step
- Map: V0-V10, VV0-VV9, 21 types
- Invert: on/off
- Persistence: 0-4, 5 steps
- Line density: L/M/H/UH, 4 steps

4.8 Power Doppler Imaging

- Dual live
- Support directional PDI
- Frequency (depend on probe)
- Acoustic output power: 7%-100%
- Dynamic range: 10-70, 5/step
- Gain: 0-100, 2/step

- ROI size/position: adjustable
- Steer: max. 20° (linear transducers)
- Scale: 30 steps (depend on exam mode)
- Wall filter: 0-7, 8 steps
- PRF: Max. 7.8kHz
- Packet size: 0-3, 4 steps
- Smooth: 0-4, 5 steps
- B/C Align: on/off
- Priority: 0%-100%, 10%/step
- Map: P0-P3, dP0-dP3, 8 types
- Persistence: 0-4, 5 steps
- Line density: L/M/H/UH, 4 steps

4.9 PW/CW-Mode

- Display formats: V2:3, V3:2, V3:1, H2:3,
Full (V: vertical, H: horizontal)
- iTouch™: Auto optimization (Baseline,
PRF)
- Frequency (depend on probe)
- PW velocity: max. 924.0cm/s
- CW velocity: max. 6160cm/s
- Sample volume size: 0.5-20mm (PW
only), 0.5-5mm/step
- Sample gate depth: adjustable
- Scale: 30 steps
- Baseline: -4~4, 9 steps
- PW Steer: max. 20° (linear transducer)
- Audio: 0%-100%, 2%/step
- PW PRF: max. 24kHz
- Gain: 0-100, 2/step
- Dynamic range: 24-72, 2/step
- Speed: 1-6, 6 steps
- Wall filter: 0-6, 7 steps
- Invert: on/off
- Angle: -89°~89°, 1/step
- Quick angle: 0°, -60°, 60°
- Gray map: 8 types
- Tint map: Off; 16 types
- Time/frequency resolution: 0-4, 5 steps
- Auto calc: on/off
- Trace area: above, below, all
- HPRF: on/off

4.10 Tissue Velocity/Energy Imaging

- (included in TDI option)
- Available on phased array transducer
- Dual live: side by side displays B and
B+TVI



- Max velocity: 199.9cm/s
- Max. frame rate: 429f/s
- PRF: max. 6.1kHz
- Acoustic output power: 7%-100%
- Gain: 0-100, 2/step
- Dynamic range: 10-70, 5/step (TEI only)
- ROI size/position: adjustable
- Scale: 30 steps
- Baseline: -8~8, 17 steps (TVI only)
- Wall filter: 0-7, 8 steps
- Packet size: 0-3, 4 steps
- Velocity tag: on/off
- Smooth: 0-4, 5 steps
- B/C Align: on/off
- Priority: 0%-100%, 10%/step
- Map: 10 types
- Invert: on/off (TVI only)
- Persistence: 0-4, 5 steps
- Line density: L/M/H/UH, 4 steps

4.11 Tissue Velocity Doppler (included in TDI option)

- Available on phased array transducer
- Display formats: V2:3, V3:2, V3:1, H2:3, Full (V: vertical, H: horizontal)
- Max velocity: 924.0 cm/s
- Sample volume size: 0.5-20mm
- Sample gate depth: adjustable
- Scale: 30 steps
- Baseline: -4~4, 9 steps
- Audio: 0%-100%, 2%/step
- PRF: max. 24.0kHz
- Gain: 0-100, 2/step
- Dynamic range: 24-72, 2/step
- Speed: 1-6, 6 steps
- Wall filter: 0-6, 7 steps
- Invert: on/off
- Angle correction: -89°~89°, 1/step
- Quick angle: 0°, -60°, 60°
- Gray map: 8 types
- Tint map: Off; 16 types
- Time/frequency resolution: 0-4, 5 steps

4.12 Tissue Velocity Motion (included in TDI option)

- Display formats: V2:3, V3:2, V3:1, H2:3, Full (V: vertical, H: horizontal)
- Acoustic output power: 7%-100%

- Dynamic range: 30-240, 5/step
- Gain: 0-100, 1-2/step
- Speed: 1-6, 6 steps
- M soften: 0-14, 1/step
- Gray Map: 8 types
- Edge enhance: 0-3, 1/step

4.13 Smart 3D (option)

- Smart 3D™
 - Display formats: Single, Dual, Quad, A4:1
 - Reset: Reset All, Reset curve, Reset orientation
 - Quick Rotation: 0°, 90°, 180°, 270°
 - Render type: Gray, Invert
 - Accept VOI: on/off
 - VOI: on/off
 - Render: Surface, Max, Min, X-ray
 - Direct: 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: 0-20, 21 steps
 - Bright: 0%-100%, 2%/step
 - Contrast: 0%-100%, 2%/step
 - Tint: off; 8 types
 - Current window: VR, A, B, C
 - MPR/VR: MPR, VR
 - iClear: Off; On, 1-4 steps
 - Slice
 - Flip
 - Sync
 - MPR only: off/on
- Edit
 - Rotation control: X, Y, Z axis
 - Tool: inside polygon, outside polygon; inside contour, outside contour; inside rect, outside rect
 - Other operations: undo, undo all

4.14 4D (option)

- Available on volume transducer
- Static 3D and 4D
 - 4D frame rate: max. 30 vps
 - Display formats: Single, Dual, Quad, A4:1
 - Reset: Reset ALL, Reset curve, Reset

orientation

- Quick Rotation: 0°, 90°, 180°, 270°
- Render type: Gray, Invert
- Accept VOI: on/off
- VOI: on/off
- Render: Surface, Max, Min, X-ray
- Direct: 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
- Transparency: 0%-100%, 5 %/step
- Smooth: 0-20, 21 steps
- Brightness: 0%-100%, 2%/step
- Contrast: 0%-100%, 2%/step
- Tint: off; 8 types
- Current window: VR, A, B, C
- MPR/VR: MPR, VR
- iClear: Off; On, 1-4 steps
- Slice
- Flip
- Sync
- MPR only: off/on

● iPage

- Slices number: 3-16
- Spacing: 0.5-10mm
- Line Direction: V/H
- Ref. Plane: A, B, C
- Display format: 2×2, 3×3, 4×4, 5×5
- Adjust Slice
- Range Position
- Slice Position
- Ref. Image: on/off
- Reset Orientation

● Edit

- Rotation control: X, Y, Z axis
- Tool: inside polygon, outside polygon; inside contour, outside contour; inside rect, outside rect
- Other operations: undo, undo all

4.15 iScape™ View (option)

- Panoramic imaging
- Available on all transducers
- Acquisition method: B mode
- Imaging length: 120cm
- Tint map: off; 16 types
- Rotation: 0°~355°

4.16 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

4.17 TDI QA (option)

- Dedicated quantification tool for TDI velocity analysis
- Freehand ROI: manually deploy ROI on the cine
- Up to 8 ROIs
- ROI tracking: on/off
- Std.Height: 1.5-50 mm
- Std.Width: 1.5-50 mm
- Std.Angle: -89°~90°
- Export: export current data as a CSV format file

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 12392 frames and PW mode up to 169.6s
- Maximum 4D cine memory is around 271 volumes
- Retrospective storage (1-120s, or 1-120 cycles, pre-settable) and prospective storage (1-480s, or 1-120cycles, 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 Post Processing

- B-mode:
Zoom
Gray map

- Tint map
- Flip
- Rotation
- M-mode:
 - Gray map
 - Tint map
- Color/Power:
 - Invert
 - Baseline
 - Map
 - Priority
 - Smooth
- PW/CW:
 - Gain
 - Baseline
 - Angle correction
 - Quick angle
 - Invert
 - Gray map
 - Tint map

- Doppler mode
 - D Velocity
 - Time
 - Heart Rate
 - Acceleration
 - D Trace
 - PS/ED
 - Volume Flow
- Automatic Doppler Spectrum Analysis
 - Heart cycle pre-settable (1, 2, 3, 4, 5)
 - Automatic tracing in real-time
 - User configurable display of items
 - Support PI, RI, TAMAX, TAMEAN, Volume Flow calculations
 - Appropriate factory setting according to applications

6.2 Clinical option measurement package

- Abdominal
 - Liver
 - Common Hepatic Duct
 - Portal Vein Diameter
 - Gall Bladder: Length, Height, Wall Thickness
 - Common Bile Duct
 - Pancreas: Head, Body, Tail, Duct
 - Spleen
 - Left/Right Kidney: Length, Width, Height, Volume, Cortical Thickness
 - Left/Right Adrenal Gland: Length, Width, Height
 - Abdominal Aorta Diameter
 - Abdominal Aorta Bifurcate Diameter
 - Iliac Diameter
 - Bladder: Length, Width, Height, Volume, micturition volume
 - Common Hepatic Artery
 - Hepatic Artery
 - Portal Vein, Main Portal Vein
 - Hepatic Vein, Left Hepatic Vein, Middle Hepatic Vein, Right Hepatic Vein
 - Splenic Artery
 - Splenic Vein
 - Left/Right Renal Artery, Main Renal Artery, Renal Artery Origin, Arcuate Artery, Segmental Artery, Interlobar Artery, Renal Vein

6 Measurement/Analysis and Report*

6.1 Generic measurements

- 2D-mode
 - Depth
 - Distance
 - Area: Ellipse, Trace, Spline, Cross
 - Trace Length
 - Double Distance
 - Parallel
 - Volume: 3-Distance, Ellipse, Ellipse + Distance)
 - Length Ratio
 - Area Ratio
 - IMT
 - B Histogram
 - B Profile
 - Volume Flow
 - Color Velocity
- M-mode
 - Distance
 - Time
 - Slope
 - Heart Rate
 - Velocity

- Abdominal Aorta
- Celiac Axis
- Superior Mesenteric Artery
- Inferior Vena Cava
- Superior Mesenteric Vein
- Gynecology
 - Cervix: Length, Height, Width
 - Uterus: Length, Width, Height, Volume, Uterus body, Endometrium Thickness
 - UT-L/CX-L
 - Ovary: Length, Width, Height, Volume
 - Follicle: Length, Width, Height, Average Diameter, Volume
- Obstetrics
 - Early OB: GS, YS, CRL, BPD, FL, NT, Amniotic Fluid
 - 2nd- 3rd Trimester: BPD, HC, OFD, FL, AC, AF, NF, PL Thickness, TAD, APAD, TCD, Cisterna Magna, HW, OOD, IOD, Orbit, HUM, Ulna, RAD, Tibia, FIB, CLAV, Vertebrae, MP, Foot, Ear, APTD, TTD, FTA, THD, HrtC, TC, Umb VD, F-Kidney, Mat Kidney, Cervix L, Facial Angle
 - Fetal Heart: LVIDd, LVIDs, LV Diam, LA Diam, RVIDd, RVIDs, RV Diam, RA Diam, IVSd, IVSs, IVS, LV Area, RV Area, RA Area, Ao Diam, MPA Diam, LVOT Diam, RVOT Diam,
 - Gestational Age
 - Amniotic Fluid Index
 - Fetal Growth
 - Fetal Trend Graph
 - Estimated Fetal Weight
 - Multi-gestational Calculations
 - Fetal Biophysical Profile
 - User definable OB tables
 - Z-score
- Cardiology
 - LV Function: Teichholz, Cube, Gibson, Simpson Single-plane, Simpson Bi-plane, Modified Simpson, Bullet, S-P Ellipse, B-P Ellipse
 - Auto LV: auto measurement in Simpson method
 - LV Mass: Area-Length Method, Truncated-Ellipsoid Method, Cube Method
- Method
 - Atrial Volume: LA Vol(A-L), LA Vol(Simpson), RA Vol(Simpson)
 - LVIMP
 - LV TEI, RV TEI
 - Qp/Qs
 - PISA MR, AR, TR, PR
 - MVA(VTI), AVA(VTI)
 - MV medial/lateral (TDI)
- Urology
 - Prostate: Length, Width, Height, Volume
 - PPSA, PSAD
 - Ureter Diameter
 - Bladder: Length, Width, Height, Volume, micturition volume
 - Left/Right Kidney: Length, Width, Height, Volume, Cortical Thickness
 - Left/Right Adrenal Gland: Length, Width, Height
 - Left/Right Testis: Length, Width, Height
 - Left/Right Seminal Vesicle: Length, Width, Height
- Vascular
 - Carotid: CCA, ECA, ICA, Bulb, Vert A, Subclav A
 - Upper Extremity Artery: Subclav A, Axill A, Brachial A, Radial A, Ulnar A, Innom A
 - Upper Extremity Vein: Cephalic V, Basilic V, Ulnar V, Radial V
 - Lower Extremity Artery: CFA, SFA, Pop A, TP Trunk A, Peroneal A, P.Tib A, A.Tib A, Dors. Ped A,
 - Lower Extremity Vein: 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
 - TCD (Transcranial Doppler): ACA, MCA, PCA, Basilar, A Comb.A, P Comb.A, Vertebral A, Basilar A
- Small Parts
 - Thyroid: Length, Height, Width, Volume
 - Isthmus Height

- Testis: Length, Height, Width
- Mass: Length, Height, Width, Nip. Distance, Skin Distance
- Superior Thyroid Artery
- Inferior Thyroid Artery
- Orthopedics
 - Hip
 - d/D

6.3 IMT

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

6.4 Smart OB

- Auto measurement for OB, a special tool for easy OB scan, and greatly reduce time and increase productivity
- Support BPD, HC, OFD, FL, AC
- Initiating AC should input GA first
- Measurement result can be modified by user

6.5 Report

- Specific report template to the application
- Editable value in report
- Images are selectable
- Titles are pre-settable in setup
- Export as PDF/RTF format

6.6 Off-line measurement and report templates user-defined tools (included in UltraAssist tool)

- iMeasurement
 - Measurement and calculation user-defined tool off line
- iReport
 - Report templates user-defined tool off line

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

7 Exam Storage and Management

7.1 Exam storage

- 320GB hard drive. About 270GB internal

hard drive reserved for patient data storage

- Capable of storage up to approximately 89,822 single frames (FRM format)
- Storage area
 - Pre-settable: image area, standard area, full-screen
 - Image area: 640*480
 - Standard area: 800*600
 - Full-screen: 1024*768

7.2 Exam management

- iStation™ workstation dedicated for patient exam management
- Patient exam query/retrieve
- Support review of current and past exam
- New exam, Activate 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 format (CIN: system format)
- Support backup/send to USB devices, CD-RW/DVD-RW media

8 Connectivity

8.1 Ethernet Network Connection

- Wired connection
- Wireless connection: built-in wireless adapter (option)

8.2 DICOM 3.0

- DICOM Basic (option)
 - Task management
 - Print
 - Storage
 - Storage Commitment
 - Media Exchange
- DICOM Worklist (option)
- DICOM Modality Performed Procedure Step - MPPS (option)
- DICOM OB/GYN structure report (option)
- DICOM Cardiac structure report (option)



- DICOM Vascular structure report (option)
 - DICOM Query/Retrieve (option)
- 8.3 iStorage(included in UltraAssist tool)
- Direct network storage tool between ultrasound system and personal computer

9 Probes

9.1 Curve array

- 3C5A
 - Application: Adult Abdomen, Gynecology, Obstetrics, Vascular, Pediatric Abdomen
 - Bandwidth: 2.5-5.2MHz(-6dB); 1.7-6.0MHz(-20dB)
 - Center Frequency: 3.5MHz
 - Number of Elements: 128
 - FOV (max): 70°
 - ExFOV: 90°
 - Convex Radius: 50mm
 - Physical Footprint: 76mm× 29.5mm
 - Footprint: 62mm × 16mm
 - B-mode Frequencies: 2.0, 3.5, 4.5, 5.0 MHz
 - Harmonic Frequencies: 5.0, 6.0MHz
 - Doppler Frequencies: 2.5, 3.0MHz
 - Biopsy Guide: available, multi angle, reusable
- 6C2
 - Application: Pediatric Abdomen, Pediatric Cardiac, TCI, Nerve
 - Bandwidth: 4.6-9.3MHz(-6dB); 3.3-11.3MHz(-20dB)
 - Center Frequency: 6.5MHz
 - Number of Elements: 128
 - FOV (max): 100°
 - ExFOV: 120°
 - Convex Radius: 15mm
 - Physical Footprint: 33.5mm×24.8mm
 - Footprint: 29mm× 10mm
 - B-mode Frequencies: 5.0, 6.5, 7.5, 8.5 MHz
 - Harmonic Frequencies: 8.0, 9.0MHz
 - Doppler Frequencies: 4.4, 5.0MHz
 - Biopsy Guide: available, multi angle,

- reusable
- V10-4
 - Application: Gynecology, Obstetrics, Urology
 - Bandwidth: 4.7-9.0MHz(-6dB); 3.4-11.0MHz(-20dB)
 - Center Frequency: 6.5MHz
 - Number of Elements: 128
 - FOV (max): 160°
 - ExFOV: 180°
 - Convex Radius: 10mm
 - Physical Footprint: 22.1mm×21.5mm
 - Footprint: 22.1mm×9.1mm
 - B-mode Frequencies: 5.0, 6.5, 7.5, 8.5MHz
 - Harmonic Frequencies: 8.0, 9.0 MHz
 - Doppler Frequencies: 4.0, 5.0 MHz
 - Biopsy Guide: available, single angle, reusable
- V10-4B
 - Application: Gynecology, Obstetrics, Urology
 - Bandwidth: 4.7-9MHz(-6dB); 3.4-11.0MHz(-20dB)
 - Center Frequency: 6.5MHz
 - Number of Elements: 128
 - FOV (max): 160°
 - ExFOV: 180°
 - Convex Radius: 10mm
 - Physical Footprint: 22.1mm×21.5mm
 - Footprint: 22.1mm×9.1mm
 - B-mode Frequencies: 5.0, 6.5, 7.5, 8.5MHz
 - Harmonic Frequencies: 8.0, 9.0 MHz
 - Doppler Frequencies: 4.0, 5.0 MHz
 - Biopsy Guide: available, single angle, reusable

9.2 Linear array

- 7L4A
 - Application: Small parts, Vascular , Musculoskeletal, Pediatric Abdomen, Nerve
 - Bandwidth: 5-11.7MHz (-6dB); 3.7-13.1MHz (-20dB)
 - Center Frequency: 7.5MHz
 - Number of Elements: 128

- Field of View (max): 38mm
- Steered Angle: +/-6°(B), +/-12°(Color, PW)
- Physical Footprint: 45.7mm×10.9mm
- Footprint: 43mm×10mm
- B-mode Frequencies: 5.0, 7.5, 8.5, 10.0MHz
- Harmonic Frequencies: 8.0, 10.0MHz
- Doppler Frequencies: 5.0, 5.7MHz
- Biopsy Guide: available, multi angle, reusable
- L12-4
 - Application: Small parts, Vascular, Musculoskeletal, Pediatric Abdomen, Nerve
 - Bandwidth: 4.5-10.0MHz (-6dB); 3.0-13.0MHz (-20dB)
 - Center Frequency: 7.5MHz
 - Number of Elements: 192
 - Field of View (max): 38mm
 - Steered Angle: +/-6°(B), +/-12°(Color, PW)
 - Physical Footprint: 45.7mm×10.9mm
 - Footprint: 43mm×10mm
 - B-mode Frequencies: 5.0, 7.5, 8.5, 10.0MHz
 - Harmonic Frequencies: 8.0, 10.0MHz
 - Doppler Frequencies: 5.0, 5.7MHz
 - Biopsy Guide: available, multi angle, reusable
- L14-6
 - Application: Small parts, Vascular, Musculoskeletal, Pediatric Abdomen, Nerve
 - Bandwidth: 5.1-12.5MHz (-6dB); 3.5-16.0MHz (-20dB)
 - Center Frequency: 10MHz
 - Number of Elements: 128
 - Field of View (max): 26mm
 - Steered Angle: +/-6°(B), +/-20°(Color, PW)
 - Physical Footprint: 31.6mm×22.8mm
 - Footprint: 30mm× 8mm
 - B-mode Frequencies: 8.0, 10.0, 12.0, 14.0MHz
 - Harmonic Frequencies: 12.0, 14.0MHz

- Doppler Frequencies: 5.7, 6.6MHz
- Biopsy Guide: available, multi angle, reusable

9.3 Phased array

- 2P2
 - Application: Adult Cardiac, Pediatric Cardiac, TCI, Adult Abdomen
 - Bandwidth: 2-4.1MHz (-6dB); 1.5-5.0(-20dB)
 - Center Frequency: 2.5MHz
 - Number of Elements: 64
 - Field of View (max): 90°
 - Physical Footprint: 25.2mm×20.6mm
 - Footprint: 23mm×15mm
 - B-mode Frequencies: 2.0, 2.5, 3.0, 3.5MHz
 - Harmonic Frequencies: 3.2, 3.6MHz
 - Doppler Frequencies: 2.0, 2.3MHz
 - CW Frequency: 2.0MHz
 - Biopsy Guide: available, multi angle, reusable

9.4 Volume curved array

- D6-2
 - Application: Gynecology, Obstetrics, Abdomen
 - Bandwidth: 2.6-5.5MHz(-6dB); 1.6-6.2(-20dB)
 - Center Frequency: 4.5MHz
 - Number of Elements: 128
 - FOV (max): 70°(B)× 70°(sweep)
 - Convex Radius: 40mm
 - Physical Footprint: 66.36mm ×44.99mm
 - Footprint: 66.36mm×44.99mm
 - B-mode Frequencies: 2.5, 3.5, 4.5, 5.5MHz
 - Harmonic Frequencies: 5.0, 6.0MHz
 - Doppler Frequencies: 2.5, 3.0MHz
 - Biopsy Guide: not available
- D6-2A
 - Application: Gynecology, Obstetrics, Abdomen
 - Bandwidth: 2.6-5.5MHz(-6dB); 1.6-6.2MHz(-20dB)
 - Number of Elements: 128
 - FOV (max): 80°(B) × 70°(sweep)

- Convex Radius: 40mm
- Physical Footprint: 79.2mm×56mm
- Footprint: 64mm×47.2mm
- B-mode Frequencies: 2.5, 3.5, 4.5, 5.5MHz
- Harmonic Frequencies: 5.0, 6.0MHz
- Doppler Frequencies: 2.5, 3.0MHz
- Biopsy Guide: not available

- Encryption: WEP, WPA-PSK, WPA2-PSK
- Transfer speed: Max. 300Mbps
- Protocol: 802.11b, 802.11g, 802.11n

10 Peripheral Devices and Accessories

(Option)

- 10.1 Analog Black/white video printer
 - SONY UP-897MD
 - MITSUBISHI P93W-Z
- 10.2 Analog Color video printer
 - SONY UP-20
 - MITSUBISHI CP910E
- 10.3 Digital Black and White Video Printer
 - SONY D897
- 10.4 Graph/text printer
 - HP LaserJet p1007
 - HP LaserJet 1020 plus
- 10.5 Footswitch
 - USB port: FS-81-SP (1-pedal)
 - USB port: 971-SWNOM (2-pedal)
 - USB port: SP-997-350 (3-pedal)
 - Support User-definable functions (Freeze, Save, Print)
- 10.6 ECG module
 - ECG lead port: 6 pin, IEC&AHA
- 10.7 Built-in Battery
 - Model: LI23I002A
 - Replaceable and rechargeable lithium battery
 - Continuous work time: about 1h in B mode
 - Full battery lasts about 24h in standby mode
 - Empty battery recharged to full in less than 8h
- 10.8 Built-in DVD R/W
 - USB DVD R/W drive
- 10.9 Barcode reader
 - 1-D barcode reader: SYMBOL LS2208-SR
- 10.10 Built-in wireless adapter

11 System Inputs and Outputs

- 11.1 Video/Audio output
 - Video out: 1 port
 - Audio out: 2 ports
 - S-Video out: 1 port
 - DVI: 1 port
 - VGA out: 1 port
- 11.2 Video/Audio Input
 - Audio in: 2 ports
 - ECG in: 1 port
- 11.3 Other input/output
 - USB: 5 ports
 - Ethernet: 1 port
 - Remote control: 1 port

12 Safety and Conformance

- 12.1 Quality standards
 - ISO 9001:2008
 - ISO 13485:2003
- 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
 - EN ISO 14971 and ISO 14971
 - EN ISO10993-1 and ISO10993-1
 - EN 62366 and IEC 62366
 - EN 62304 and IEC 62304
 - EN 1041
 - EN 980
 - IEC 60878
- 12.3 CE declaration

DC-N3 system is fully in conformance with the Council Directive 93/42/EEC Concerning Medical Devices, as amended by 2007/47/EC.. The number adjacent to the CE marking (0123) is the code of the EU-notified body that certified meeting the requirements of Annex II of the Directive.

NOTICE:

Not all features or specifications described in



this document may be available in all probes and/or modes.

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

healthcare within reach

mindray