

## DC-6 Expert

### Diagnostic Ultrasound System



MINDRAY has newly released DC-6 Expert, a general purpose color Doppler ultrasound system with full ergonomic designs, supplying more accessible exams, higher imaging performance, proved consistency and more comfort throughout.

DC-6 Expert not only professionally supports clinical exams and researches with various software packages, but also supplies exceptional image quality with scanning integrated advanced signal processing technologies (MBP, FTO, TSF, ITA, and AVI). Besides, various advanced features are also included in standard configuration, such as THI, HPRF, directional power Doppler and trapezoid imaging.

Virtually, every element is designed for comfort, convenience and scanning flexibility. Size, shape and menu structure facilitate exams in a wide variety of clinical environments and release user's fatigue. Free arm supports monitor to set the position and gesture freely with wide sharp view. On-screen navigation improves using simplicity and accuracy in specified exams. DC-6 Expert system is also highly individualized with up to 24 user-define exam modes and comprehensive parameter-preset which can save and load as a user file freely.

Additionally, DC-6 Expert supports advanced imaging methods of freehand 3D (Smart3D™), anatomic M mode (Free Xros™ Imaging), panoramic imaging (iScape™ View) and continuous

wave (CW) Doppler to extend clinical application.

### **Professional Clinical Applications & imaging modes**

DC-6 Expert builds upon its proven technical foundation to offer wide clinical applications and transducers for each special clinical use. It could meet strict clinical requirements for accurate and professional diagnosis.

- **16 preset clinical modes:** user can execute exams including but not limit to
  - Abdomen
  - Cardiology
  - Gynecology
  - Obstetrics
  - Urology
  - Small part
  - Pediatrics
  - Musculoskeletal
  - Orthopedics
  - Intraoperative
  - Peripheral Vascular
- **24 user-defined exam modes:** user can customize items including but not limited to
  - Exam mode name
  - Imaging parameters
  - General measurement items for each imaging mode
  - Measurement packages
  - Obstetric formula
  - Comment library
  - Body mark library
- **Standard imaging modes:** high level standard feature including
  - B, 4B, B/M, M
  - Color Doppler
  - Power/Directional Power Doppler
  - PW mode, HPRF
  - Tissue harmonic imaging
  - Trapezoid imaging
- **CW Doppler** – with continuous wave Doppler to measure high velocity of blood deep in human body to meet more professional cardiology applications.
- **Free Xros™ Imaging** – also called anatomic M mode, based on real-time imaging or cine loop of B mode. Sample line position and angle adjustable independently, checking any segment of heart in anatomic M mode, especially suit for patients without good imaging in normal M mode.
- **iScape™ View Imaging** – also called panoramic imaging. Imaging enlarges the view of exam to show the whole structure within one image.
- **Smart3D™** – also called freehand 3D. Show 3-dimension structure with all-round view.

Free rotation enable user to observe at will, showing more intuitive information in exams.

### **Intelligent Work Flow**

DC-6 Expert offers an effective and comfortable working experience with intelligent work flow components such as iStation and iTouch™. Doctors could focus on the diagnosis and their patients.

- **iStation** – one button integrated patient information management system, supporting patients information reviewing, archiving, searching, editing and exporting.
- **iTouch™** – one button for automatic image optimization.
- **Q-click** – cursor activating items and multi-functional knob adjusting
- **One button to activate Smart3D™, Free Xros™ Imaging, i-Scape™ View**
- **Offline Analysis System** – support to post-process, measurement, adding annotations after exam.
- **Self test function** – automatic system and hardware test, generating log file
- **Auto Image Review** – thumbnail panel of images stored for current patient.
- **System Hibernation** – automatically transducer freeze, prolonging using span.
- **Ergonomic key board** – function-oriented areas with home based design
- **Operation Navigation** – instructions for easy scanning process.

### **User Interface**

- 15-inch LCD color monitor for medical use with wide view angle and sharp view
- Cursor activating items with multi-functional key adjustment
- Preset files save and load functions
- Self-test function
- Home-based design control panel arranged as functional areas
- Programmable blank keys
- Active keys brightness
- Drawable alphanumeric keyboard
- USB ports
- DICOM 3.0
- Serial and parallel ports
- CD-R/W
- Video in/output
- S-video in/output
- VGA in/output
- RGB in/output
- Audio in/output
- Microphone input
- Video printer remote control
- ECG interface
- VCR interface

- DVD recorder interface
- Color ring on probe and plug for rapid recognition
- Programmable two-pedal water-resistant footswitch

### **Technical Specification:**

#### **General Descriptions**

- **Scanning mode**
  - Electronic convex
  - Electronic linear with steering scan
  - Electronic phased array
- **Multi-frequency transducer**
  - Up to 5 frequencies
  - 2 Doppler frequencies
- **Transducer frequency**
  - 2.0~12.0MHz
- **Transducer connector**
  - 4 sockets (3 active, 1 parking)
- **Scanning depth**
  - Max. 263mm
- **Gray scale**
  - 256
- **Display**
  - 15-inch LCD color monitor for medical use with wide view angle and sharp view
- **Gain control**
  - Button adjustment
  - 8 -segment TGC

#### **Advanced Imaging Technology**

Benefiting from MINDRAY's advanced image process technologies, DC-6 Expert provides brilliant color Doppler images and precise anatomic 2D imaging.

- **Powerful Multi-beam Parallel Imaging (MBP)** increases temporal resolution and real-time frame rate, while collecting useful information to re-build high quality images.
- **Fine Tissue Optimization (FTO)** eliminates noise, improves signal-to-noise ratio and emphasizes boundary imaging.
- **Transmitting Spectrum Focusing (TSF)** greatly decreases side lobe while improving spatial and temporal resolution.
- **Innovative Transmitting Apodization (ITA)** minimizes artifact through specific apodized transmission, reducing near-field clutter and enhancing precise sound beam for more predictable results.
- **Accurate Vessel Imaging (AVI)** automatically distinguishes subtle tissue Doppler signal from blood cell to form high resolution images.

#### **Brief Image Display & Processing Parameters**

Mindray succeed in providing users with a unique ultrasound system modifying parameters to meet individual preference. All user define adjustment can be saved and reloaded.

● **B mode**

- Dynamic range
- Gain
- Images reverse and rotation
- Frame correlation, Edge enhance, Smooth, Noise Rejection
- AGC (auto gain control)
- TSI (Tissue specific imaging)
- Steer and trapezoid imaging
- THI
- Colorize

● **M mode**

- Display speed, Display mode (scroll)
- Gain, Edge enhance, M soften, Smooth
- Colorize, Full screen, Time mark

● **PW /CW mode**

- SV size/position, Steer angle
- Baseline, Gain
- Velocity scale
- PW filter
- HPRF
- Display Speed
- Correlation angle
- Duplex/Triplex
- Doppler sound
- Auto trace,
- Trace area
- Colorize
- Full screen
- Time mark

● **Color/Power/DirPower mode**

- Range of Interest (ROI)
- Steer
- Scale
- Gain,
- Baseline
- Wall filter
- Color map
- B/C live
- B disappear
- Persistence
- Priority
- Focus position

- **Free Xros™ Imaging**

- Sample line position
- Sample line angle
- Sweep speed
- Image enhance
- Gray map
- Colorize
- Time mark
- Support measurement

- **iScape™ View**

- Rotation
- Zoom
- Colorize
- Support measurement

- **Smart3D™**

- Scan method (fan, linear)
- Rendering method
- Threshold, Contrast, Brightness
- Rotation
- Single/quad display

## **Functions**

- **Cine loop**

- 2D mode (B, Color, Power, DirPower), 1024-frame max
- Time line mode (M, PW, CW), 131s max

- **Zoom**

- Spot zoom
- Pan zoom

- **Image storage**

- BMP
- JPG
- CIN
- FRM
- AVI
- DCM

- **Image archive**

- Built-in 80G hard disk
- CD-R/W
- USB
- DVD recorder
- VCR
- Video printer
- DICOM3.0

## Measurement & Calculation

- General B mode measurement:
- General M mode measurement
- General Spectral Doppler mode measurement
- General Color mode measurement
- User-define measurement
  - Add measurement or calculation items
  - Arrange general items for each imaging mode
  - Arrange clinical items for each exam mode

## Clinical Analysis Packages

- Obstetrics
- Cardiac
- Gynecology
- Small Parts
- Urology
- Orthopedics
- Peripheral Vascular

## Report

DC-6 Expert automatically generates reports for every measurement package, including general measurements and calculations.

## Standard Configuration:

- 15-inch LCD color monitor for medical use with wide view angle and sharp view
- Free arm for setting monitor position freely
- DC-6 Expert main unit
- Convex array transducer 3C5A
- Linear array transducer 7L4A
- Pulse Wave Doppler
- HPRF
- Color Doppler Flow Imaging
- Power Doppler Flow Imaging
- Directional Power Doppler Flow Imaging
- Tissue Harmonic Imaging
- Trapezoid Imaging
- iStation patient information management system
- 80G hard disk
- CD-R/W

- USB ports
- Measurement & calculation software packages
- Multi-language screen display, control panel and operation manuals

#### Options:

- Continuous Wave Doppler & Free Xros™ Imaging
- i-Scape™ View & Smart3D™
- DICOM 3.0 package
- ECG module
- Micro-convex array transducer 3C1
- Micro-convex endocavity transducer 6CV1
- Linear array transducer 10L4
- Linear array transducer 7L6
- Intrarectal biplanar transducer 6LB7
- Intrarectal linear array transducer 6LE7
- Intraoperative T-type linear array transducer 7LT4
- Phased array transducer 2P2
- Micro-convex array transducer 6C2
- Water-resistant footswitch
- Needle-guided brackets

#### Language Support

Screen display, control panel and operation manuals support

- English
- Spanish
- German
- French
- Russian
- Italian
- Portuguese
- Chinese.

#### Others Parameters

- **Power supply**
  - 100VAC to 127VAC or 220VAC to 240VAC
  - 50/60Hz±3Hz
  - 800VA (Max consumption)
- **Dimensions & Net weight**
  - Height: 1353 mm ~ 1580 mm (53.3~62.2 in), decided by LCD monitor
  - Depth: 850 mm (33.5 in)
  - Width: 500 mm (19.7 in)
  - Approx. 132 kg (291.0 lb)

### Transducer-Specification

Model name	Array type	Multi-frequency (MHz)	Doppler frequency (MHz)	Scanning Angle /length	Display depth (mm)
3C5A	Convex	2.5/3.5/5.0 H4.6/H6.0	2.5/3.3	68°	263
7L4A	Linear	5.0/7.5/10.0	5.0/5.7	35mm	118
6CV1	Endocavity	5.0/6.5/8.0	4.4/5.0	140°	118
2P2	Phased Array	2.0/2.5/3.0 H3.5/H4.0	2.0(CW) /2.5	90°	263
3C1	Micro-convex	2.5/3.5/5.0 H4.6/H6.0	2.5/3.3	136°	263
7LT4	T-type Linear	5.0/7.5/10.0	5.0/5.7	37mm	118
6LB7	Biplanar	5.0/6.5/8.0	Convex 4.4/5.0 Linear 3.7/4.6	Convex 168° Linear 62mm	118
10L4	Linear	8.0/10.0/12.0	7.3/8.0	35mm	118
7L6	Linear	5.0/7.5/10.0	5.0/5.7	56mm	118
6LE7	Intrarectal	5.0/6.5/8.0	4.4/5.0	62mm	118
6C2	Micro-convex	5.0/6.5/8.0	4.4/5.0	93°	118