Recho R9W/Recho R9/Recho R9 Pro/ Recho R9 Exp/Recho R9S/Recho R9T/ Crius R9 CV/Anesus R9 CV/Recho R9 Super/Recho R9 Lumi/Recho R CV/ Recho R CVx/Recho R7/Recho R7S/ Recho R7T/Recho R7 Super

Diagnostic Ultrasound System

Operator's Manual

[Basic Volume]

6.2 B Mode

B mode is the basic imaging mode that displays real-time views of anatomical tissues and organs.

6.2.1 B-mode Image Scanning

1. Enter the patient information, and select the appropriate probe and exam mode.
2. Press <B> on the control panel to enter B mode.
3. Adjust parameters to optimize the image.
4. Perform other operations (e.g. measurement and calculation) if necessary.

6.2.2 B-mode Image Parameters

In B Mode scan, the image parameter area on the right part of the screen will display the real-time parameters:

Items	Remark
F	Frequency
D	Depth
G	Gain
FR	Frame Rate
DR	B Dynamic Range
TSI	Tissue characteristics
iClear	Display when the function is activated.
iBeam	
iTouch	
Zoom	
Echo Boost	

Image Quality

Used for switching B/THI and adjusting the frequency. The real-time value of frequency is displayed in the image parameter area, and if harmonic frequency is used, “F H” is displayed as harmonic frequency value.

The system provides a THI function using harmonics of echoes to optimize the image. Harmonic imaging enhances near field resolution and reduces low-frequency and large amplitude noise, so as to improve Small Parts imaging.

Please select the frequency according to the detection depth and current tissue features.

Gain

To adjust the gain of the whole receiving information in B mode. The real-time gain value is displayed in the image parameter area.

Depth

This function is used to adjust the display depth of sampling, the real-time value of which is displayed in the image parameter area.

Depth increase will cause a decrease in the frame rate.

TGC

The system compensates the signals from deeper tissue by segments to optimize the image.

There are 8-segment TGC sliders on the touch screen corresponding to the areas in the image.

Adjust the signal gain for the certain image area to get a balanced image.

Acoustic Power (A.Power)

Refers to the power of ultrasonic wave transmitted by the probe, the real-time value of which is displayed in the upper left corner of the screen.

NOTE:

You should perform exams according to actual situation and follow the ALARA Principle.

Scan range and FOV position

More information can be obtained without moving the probe or changing the sampling position.

NOTE:

- The FOV position/range is available only for the convex and phased probes.
- When the scan range is adjusted to the widest, the FOV position cannot be changed.

B Steer

To steer the beam the probe transmits.

TIP:

Steer is available only for linear probes.

ExFov

For linear probes, the ExFOV function displays as trapezoid imaging.

For convex and phase probes, the ExFOV function displays as extending the scan angle.

Line Density

The function determines the quality and information of the image.

Dynamic Range (Dyn Ra.)

Adjusts contrast resolution of an image, compresses or expands gray display range.

Smooth

This feature is used to reject the noise and smooth the image.

iClear

The function is used to enhance the image profile so as to distinguish the image boundary for optimization.

iClear^{+}

This function is the advanced version of iClear. It can better enhance image quality, reject noise, and provide better contrast resolution.

If iClear^{+} is configured, iClear will be replaced by iClear^{+}.

Persistence

Used to superimpose and average adjacent B images, so as to optimize the image and remove noises.

Rotation/Flip

This function provides a better observation for image display.

The "M" mark indicates the orientation of the image; the M mark is located on the top of the imaging area by default.

iBeam

This function is used to superimpose and average images of different steer angles to obtain image optimization.

TIP:

The phased probe does not support iBeam.

Auto Merge

In the Dual-split mode, when the images of the two windows have the same probe type, depth, invert status, rotation status and magnification factor, the system will merge the two images so as to extend the field of vision.

TIP:

Only for linear probes.

Gray Map

Adjusting grayscale contras to optimize the image.

Tint Map

This function provides an imaging process based on color difference rather than gray distinction.

TSI

The TSI function is used to optimize the image by selecting acoustic speed according to tissue characteristics.

HDScope

The image inside the ROI is clearer than these outside when the function is enabled.

TIP:

The function is disabled in frozen state.

iTouch

To optimize image parameters as per the current tissue characteristics for a better image effect.

It is available for all real-time imaging in B mode.

H Scale

Display or hide the width scale (horizontal scale).

The scale of the horizontal scale is the same as that of vertical scale (depth), they change together in zoom mode, or when the number of the image window changes.The H Scale will be inverted when image is turned upwards/downwards.

Dual Live

Display different image effects of one probe for a better observation.

Two pages of adjustable parameters are displayed on the touch screen as well; where, shared parameters and left window parameters are displayed in the B (L) page, while right window parameters are displayed in the B(R) page.

In the image parameter area, parameters of the both windows are displayed.

It supports the magnification of the image.

LGC

Adjust the gain along the scan line to improve the lateral resolution of the image.

TIP:

The system provides several preset parameters for imaging.

Ref Lines

A reference line and a help line meeting the probe icon side 45° display on the 2D image under GYN and Pelvic Floor exam mode. This helps to locate midsagittal plane of pelvic floor precisely and define the reference line for measurement.

TIP:

- Ref Lines can be adjusted by pressing <Set> in frozen state.
- Use intra-cavity probe to activate the function in GYN or Pelvic Floor exam mode.

Dehaze

This function can restrain noise, so as to enhance the contrast resolution of the image.

V 1:1

This function is to display images in vertical format in the dual-split mode. After the feature is enabled, one image appears above, and the other image appears below.

TIP:

Only linear probes support this function.

Edge Enhance

This function is used to increase image profile, so as to distinguish the image boundary.

X-Vue

It is used to respectively display the scanning plane and anatomical plane on the left and right sides of the same screen in real time without changing the probe position, to acquire ultrasound images of any anatomical plane that interacts with the scanning plane. The angle of the anatomical plane can be adjusted.

- Scanning plane: displays 2D ultrasound image in real time.
- Anatomical plane: displays 2D ultrasound images of different anatomical planes that are in the same acoustic window of the scanning plane. The top right corner of the anatomical plane displays the plane orientation diagram, indicating the spatial relationship between the anatomical plane and the scanning plane.

Select [X-Vue] on the touch screen to enable the function. The system enters the tilt mode by default:

- Tap [Tilt] on the touch screen to select the tilt mode.
  - Lateral: Move the trackball left and right to adjust the anatomical plane. In Lateral tilt mode, the left side of the scanning plane displays the sampling line of the plane in real time, indicating the spatial relationship between the anatomical plane and the scanning plane.
  - Elevation: Move the trackball up and down to adjust the anatomical plane.
- Rotate the knob under [iRotate] on the touch screen to adjust the angle of the anatomical plane. The system rotates the anatomical plane along the vertical axis of the scanning slice.
- Rotate the knob under [Seek Angle] on the touch screen to adjust the angle of the scanning plane. Only the phased array probe supports this parameter.
- Select [X-Vue Image] on the touch screen to set whether to adjust the B mode parameters of a selected plane or both planes.

TIP:

Use the matrix probe to activate the function in cardiac mode.

XL View

This function expands the image area, and hide the menu and thumbnail areas.

AutoTouch

In cardiac exam mode, this function optimizes the image parameters in real time, improves the display of tissue structures such as myocardium, reduces intracardiac noise, and displays the optimized image in real time.

6.3 Color Mode

The Color mode is used to detect color flow, and the color is designed to judge the direction and speed of blood flow.

Generally, the color above the color bar indicates the flow towards the probe, while the color below the color bar indicates the flow away from the probe; the brighter the color is, the faster the flow speed becomes; while the darker the color is, the slower the flow speed becomes.

NOTE:

- During color mode imaging, menus of image optimizing for B-Mode and C-Mode are displayed on the touch screen at the same time. You can switch between the 2 modes by clicking the mode tabs.
- In Color Mode, acoustic power is synchronous with that of B Mode. Adjustment of the depth or zoom to the B Mode image will lead to corresponding changes in Color Mode image.

6.3.1 Color Mode Image Scanning

Perform the following procedure:

1. Select a premium image during B mode scan, and adjust to place the area of interest in the center of the image.
2. Press <C> to enter B+Color mode.
3. Use the trackball and <Set> to change position and size of the Region of Interest (ROI).
4. Adjust the image parameters during scan to obtain optimized images.