



CORE IMAGING

INTEGRA EXCEL

OPERATION MANUAL

ALL RIGHTS RESERVED

1 Safety precautions

Security Warning message

To ensure the safety of patients and operators, please strictly observe the following safety precautions when using the system.



Danger:

Do not use this system in the presence of combustible gas (such as anesthetic gas, hydrogen, etc.) or combustible liquid (such as ethanol, etc.).



Warning:

1. The power cord plug of the device must be connected to a wall power outlet that meets the requirements on the rated power label. Use of multifunctional sockets may affect grounding and cause leakage currents to exceed safety requirements.
2. Please use the power cord provided with the system. Only the power supply provided by the company can be used to power the ultrasonic system.
3. Ensure that the grounding terminal of the system is reliably connected to the ground during the system running.
4. The system has no waterproof design, do not use the system where liquid may enter the system. Do not spill any liquid on the system, otherwise there may be electric shock or damage. If you spill liquid on the system, please turn off the power immediately and contact your service representative.
5. Do not open the shell or panel of the device.
6. Do not use this device with electronic devices such as high-frequency electrotome, high-frequency therapy equipment or defibrillator.
7. Notes during transportation: be sure to shut down and close the monitor cover, disconnect from other equipment including ultrasonic transducer, and disconnect the power supply.

1. Notes on clinical examination techniques:

- This equipment should only be operated by qualified personnel.

2. Note when moving the device:

- Before moving a device, ensure that peripheral devices are disconnected.

3. Abnormal system operation caused by radio waves:

- This medical electronic system may interfere with the normal operation of the system if used near the radio transmitting equipment.

4. Keep the system dry at all times.

Note:

To avoid damage to the system, do not use the system in the following environments:

(1) places with direct sunlight (2) places with dramatic temperature changes (3) dusty places

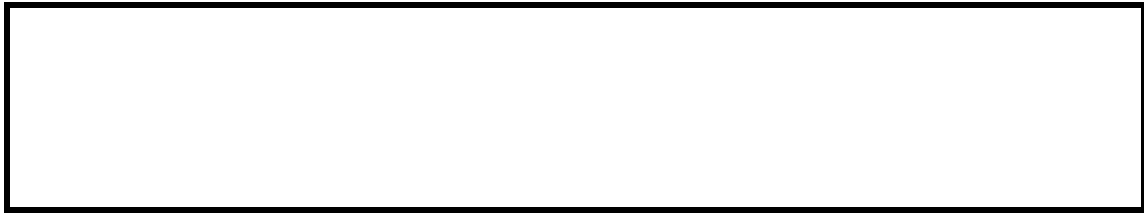
(4) places prone to vibration (5) near a strong electric field or magnetic field (such as transformer) environment (6) In the vicinity of high frequency device;

In order to ensure the safety of patients and operators, the following safety specifications should be strictly observed during the use of ultrasonic transducers.



Warning

- The ultrasonic transducer can only be used with the specified ultrasonic imaging diagnostic instrument, please refer to the corresponding ultrasonic imaging diagnostic instrument manual to select a suitable type of transducer.**
1. **Do not disassemble the ultrasonic transducer**
 3. **Do not drop the transducer.**
 4. **Do not immerse the ultrasonic transducer plug in water or disinfectant.**
 - 5.



- Note :**
- 1 To prevent abnormal transducer function, please read the following safety precautions:**
After each ultrasonic examination, the ultrasonic coupling agent on the transducer surface should be completely removed. Ultrasonic coupling gel can solidify and affect the ultrasonic image quality.
Before and after each ultrasonic examination, the transducer should be cleaned and disinfected.
 - 2 Surrounding environment requirements:**
Please use the ultrasonic transducer in the specified environment:
 - Ambient temperature: 5 ° C to 40 ° C
 - Relative humidity: 30% ~ 75% (no condensation)

1 Product overview

1.1 Intended use

Integra Excel color doppler ultrasonography diagnostic instrument is used in clinical ultrasonic diagnostic examination.

1.2 Product specification

1.2.1 Imaging mode

B Mode imaging
M Mode imaging
Color Doppler imaging
Doppler imaging

1.2.2 The power supply condition

The power supply voltage 100-240 - v AC;
Power frequency 50/60Hz
Rated input power 60W

1.2.3 Environmental conditions

	The work environment	Storage and transportation environment
The environment temperature	0 °C to 40 °C	- 20 °C ~ + 55 °C
Relative humidity	30% ~ 75% (no condensation)	30% ~ 95% (no condensation)
The atmospheric pressure	70 kpa to 106 kpa	70 kpa to 106 kpa

1.2.4 Dimensions and weight

Dimensions: length 13.25 inches, width 15.65 inches, height 2 inches
Net weight: 8.4 lbs

1.3 System configuration

The equipment is composed of a system and a transducer

1.3.1 Standard configuration

- System
- Attachments
 - Transducer
 - Power cord
 - Coupling agent

1.4 Optional

1.4.1 Optional transducers

The transducer model	The transducer type	Intended use	Applicable parts
C60	Large convex transducer	Large Abdomen	Body surface
C15	Micro convex transducer	General Abdomen, Cardiac, AFAST, TFAST	Body surface
L40	Linear array transducer	Superficial imaging	Body surface
P20	Phased array transducer	Cardiac	Heart

1.4.2 Supported external devices

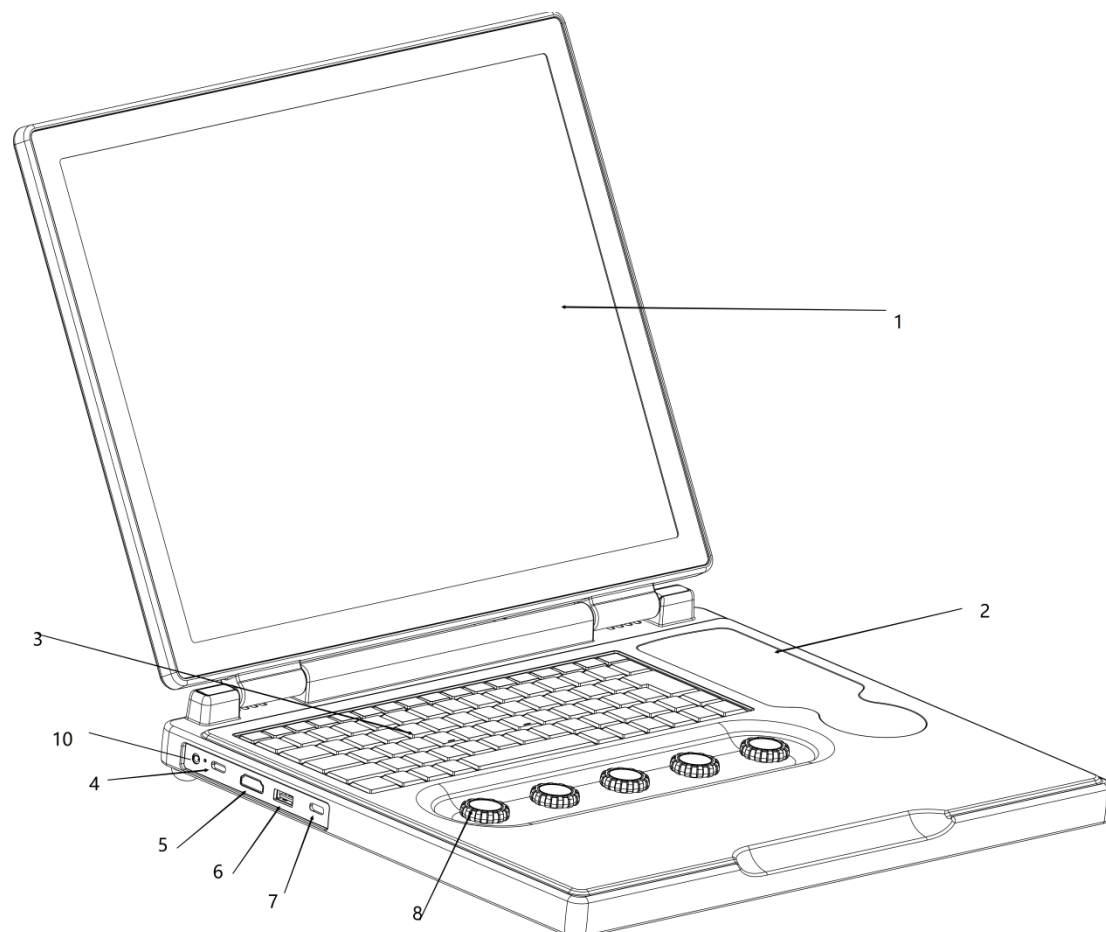
The serial number	Part name	model
1	Video printer	SONY UP-895MD, MITSUBISHI P93W
3	Graphic printer	

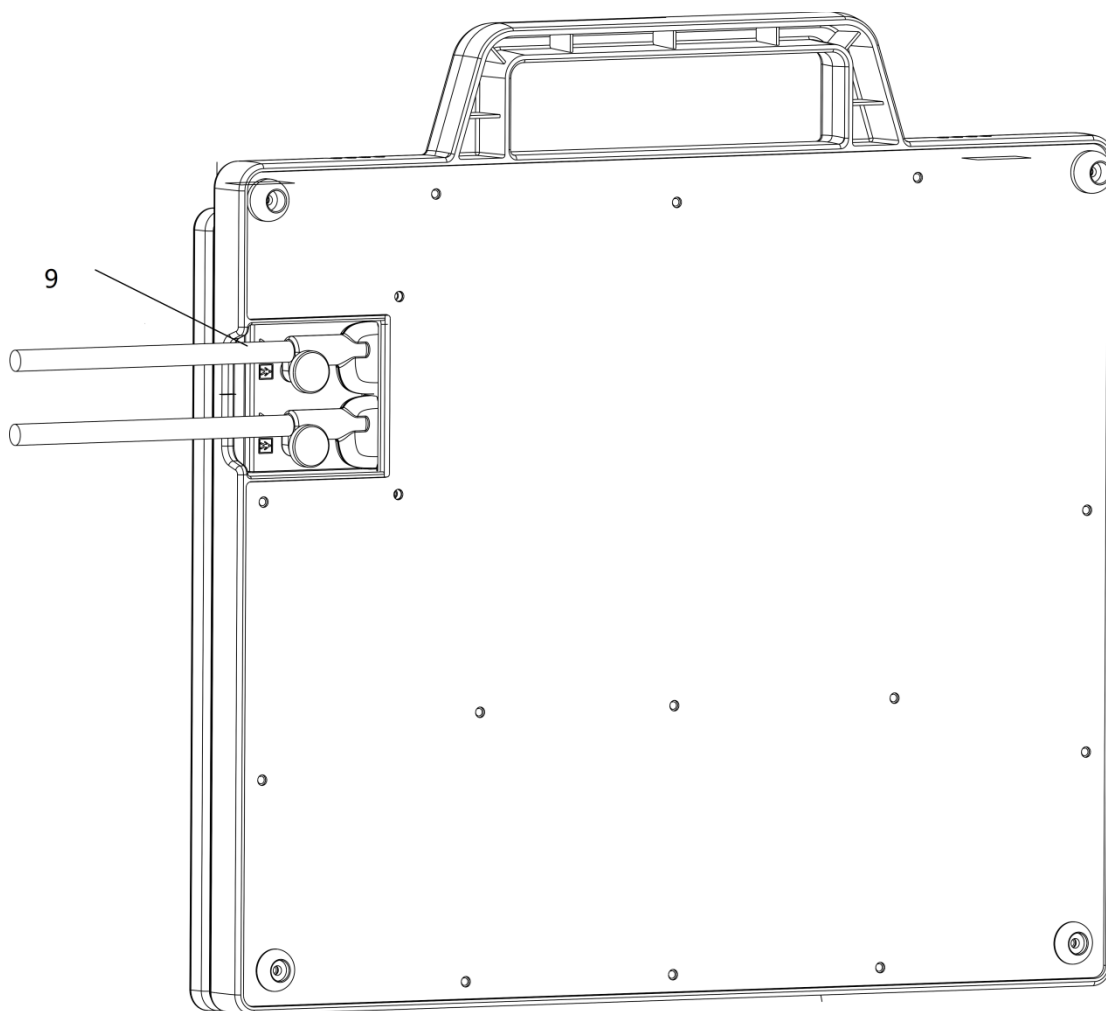
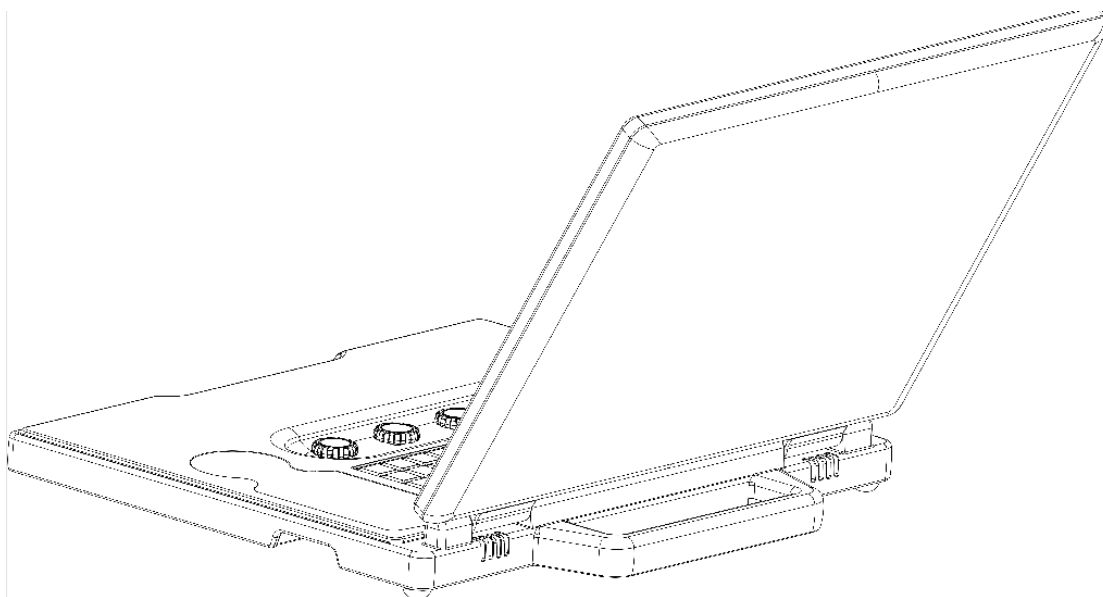
1.5 Symbols

The device is identified by the following symbols, which are described in the following list.

The serial number	symbol	instructions
1		BF application part
2		This symbol indicates that please refer to the relevant contents of the manual to avoid safety accidents
4		USB port
5		VIDEO signal interface

1.6 System Components

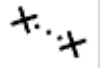




Item number	Name	Function
1	Display	Images and parameters are displayed during use
2	Touch panel	Operational control
3	Keys	Function keys

Item number	Name	Function
4	Power input socket	Power input
5	HDMI output	Connects to a HDMI
6	USB interface	Connects to a USB device
7	Type - C interface	Connects to a USB-C device
8	Multifunction encoder	See 2.6
9	Transducer input	Connects transducer on the system
10	VIDEO interface	For VIDEO connection

1.7 Control panel

Symbol	Name	Function
	Animal Information	Press button to enter the new animal information
	Storage	Save a single frame image
	Confirm	Press key to confirm
	Measurement	Enter/exit measurement calculation
	Volume	Enter/exit volume mode;
	Exit	Exit the current state
	Arrow	Insert arrow
	Remove	Clear selection
	Update	Switch images in PW imaging
	Freeze	Freeze/unfreeze screen images
	Magnification	Magnify the image

	Preview	Preview animal images
	Cine Save	Save a video
	Preset	Enter the Preset screen.
	Transducer	Transducer connection
	Report	Enter the Report page
	Biopsy	Biopsy line
	2B	Enter 2B mode
	4B	Enter 4B mode
	Screen brightness adjustment	Increased screen brightness
	Screen brightness adjustment	Reduced screen brightness
	Knob 1	1. Click to enter B/M mode and click again to return to B mode 2. In imaging mode, you can adjust the gain. Clockwise adjustment increases gain, counterclockwise adjustment decreases gain
	Knob 2	Click once to enter color mode, click again to enter power mode, and click again to return to color mode
	Knob 3	Turn the page of the image parameters menu in the non-frozen state
	Knob 4	Save a still image when image is frozen
	Knob 5	Save cine loop

2 Preparation

2.1 System

Before placing the system, read and understand the safety precautions carefully to ensure the safety of personnel and devices.

- Turn off the power and unplug it.
- Disconnect all peripherals.
- Hold the handle to move the system and place the system in the desired position.

2.2 Working power supply

The external power supply of ultrasonic diagnostic instrument must meet the following requirements:

Basic information about power adapter:

Specifications: Input AC100-240V~50/60Hz 1.5A (Max); Output: DC 15V 3A

2.3 Connection and disassembly of transducer

2.3.1 Connect the transducer



Warning

:

When loading and unloading transducers, make sure that the system is shut down or frozen.

Point the cable end of the transducer plug towards the bottom of the system, align the plug with the transducer socket and carefully push it into place (as shown below).

2.3.2 Remove the transducer

Pull out the transducer gently to loosen the connection between the transducer plug and the system.

2.4 Printing

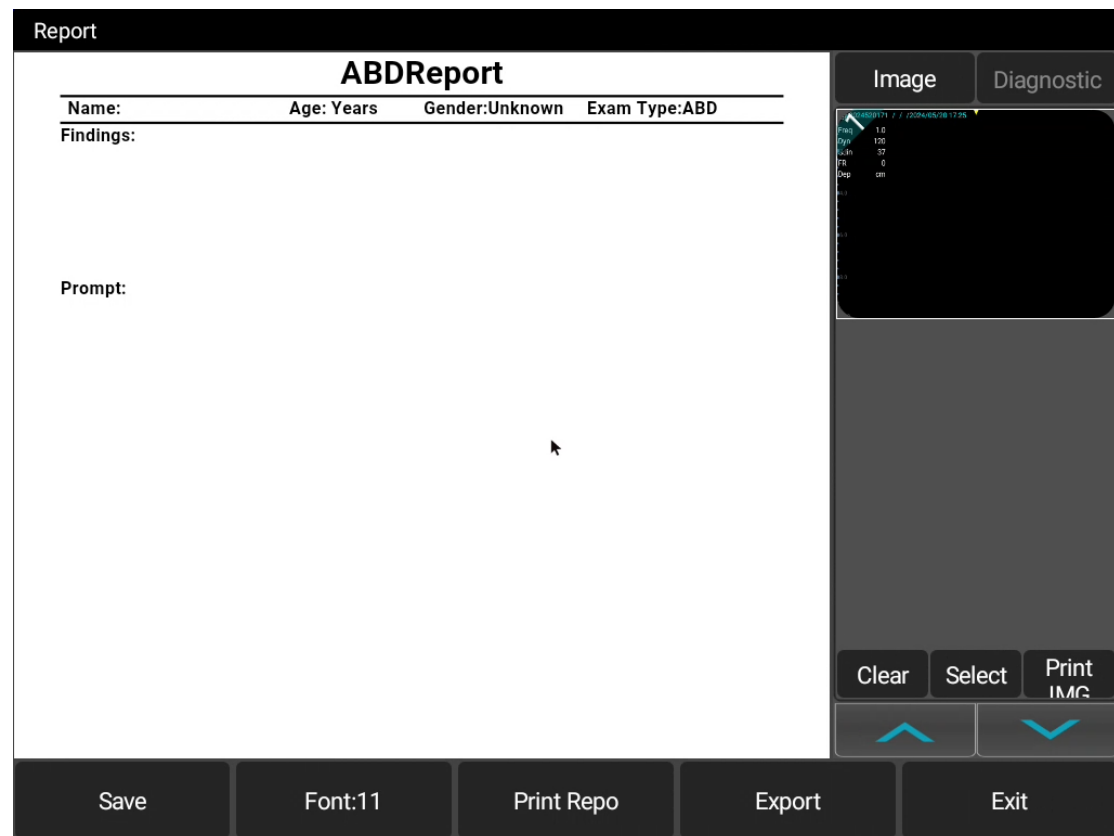
2.4.1 Printing services

The operation of printing service is as follows:

The first step:

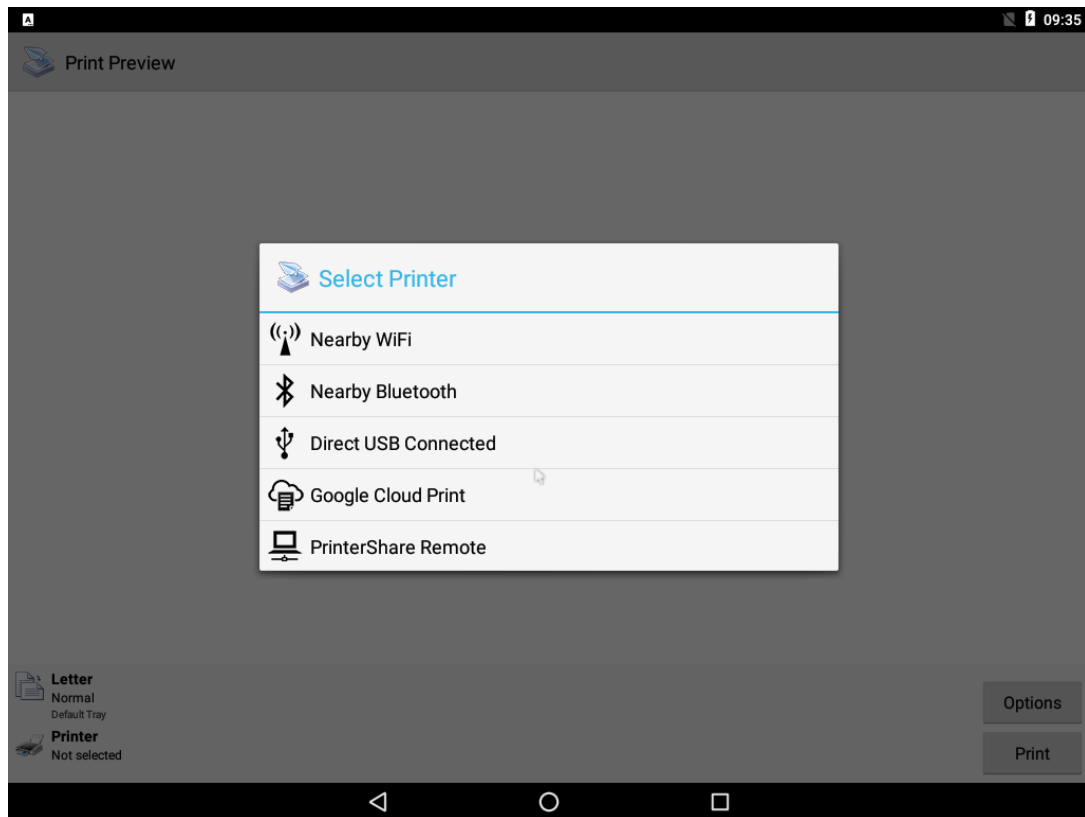
Click the print button in the report interface, system print and PrintShare print options appear;As shown in the figure below.

Select PrintShare to print.



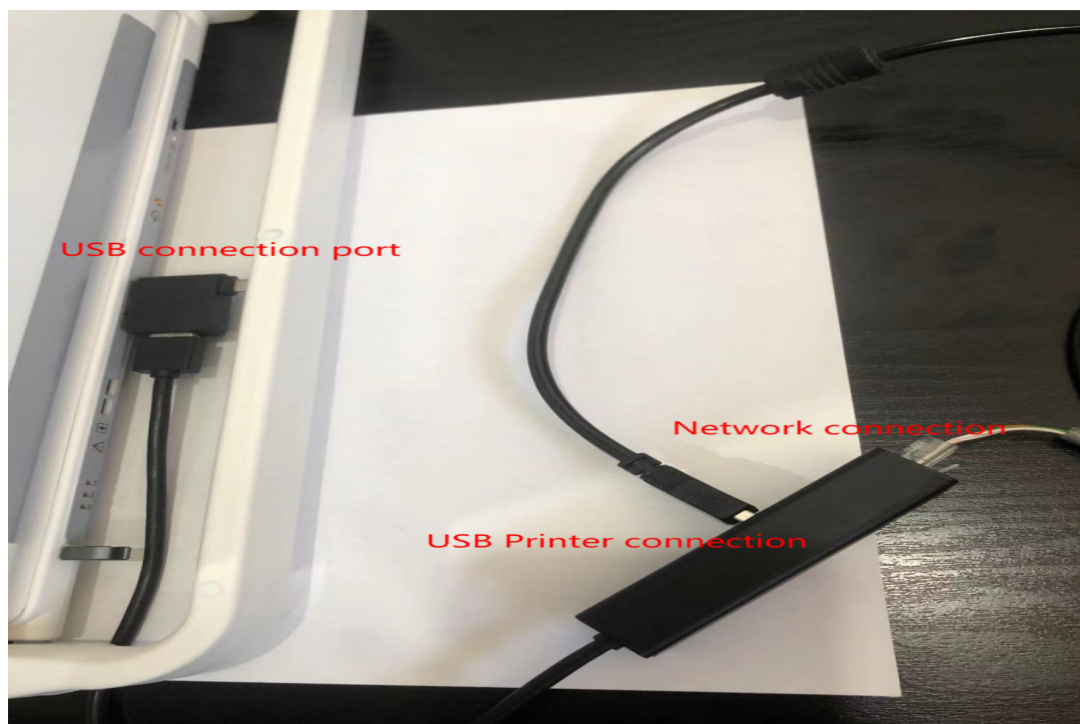
The second step:

Select Direct USB Connected and use the data cable to connect the system to the printer.

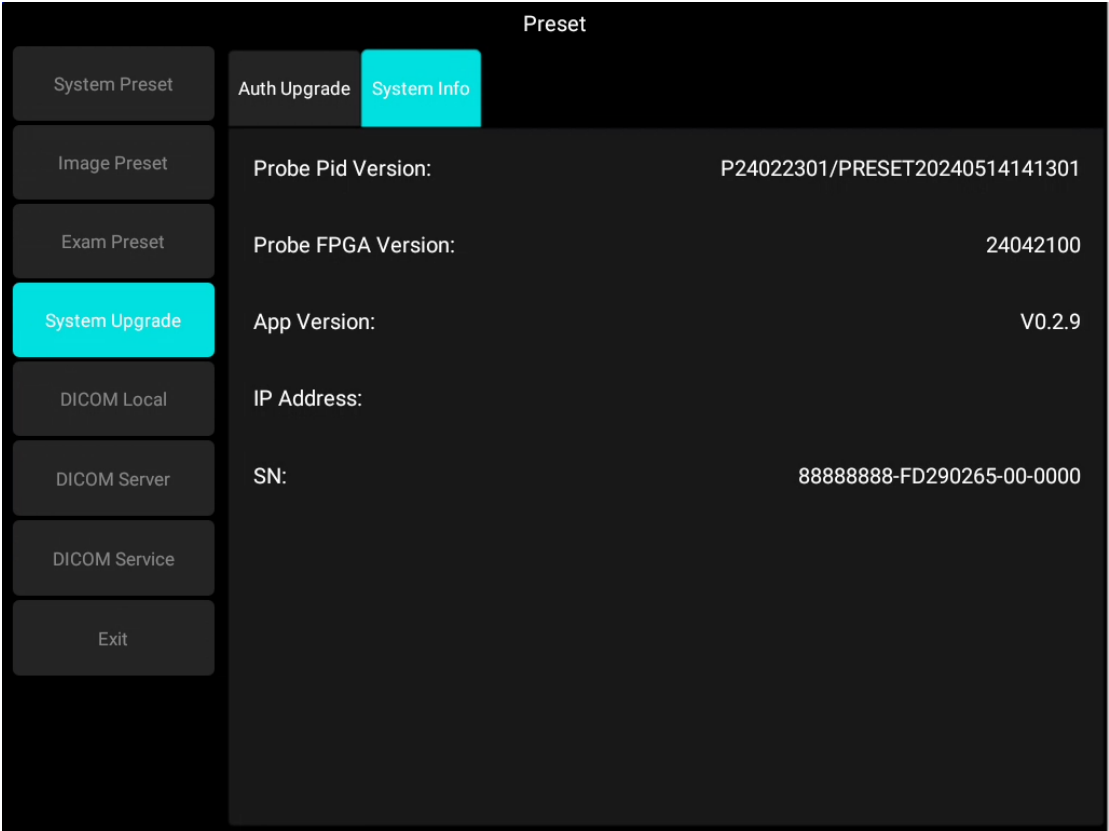


Step 3:

Select a connected printer. If it is the first time to use the printing service, when the software prompts you to download the driver, please ensure that the system is connected to the Internet (connect the network through the USB to wired network port, as shown in the following figure).



To check whether the network connection is successful, check whether the IP address is displayed on the Preset screen - System Upgrade and Maintenance - System Info (see the following figure). If the IP address is displayed, the network connection is successful.

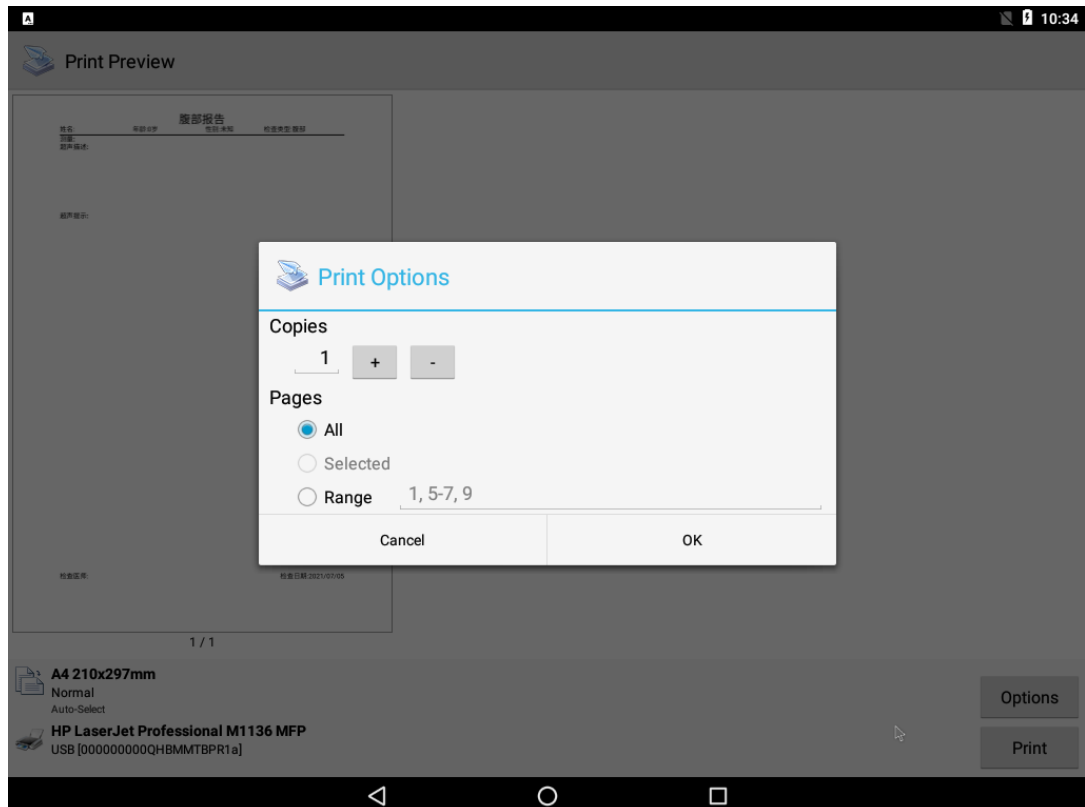


Then download the required drivers



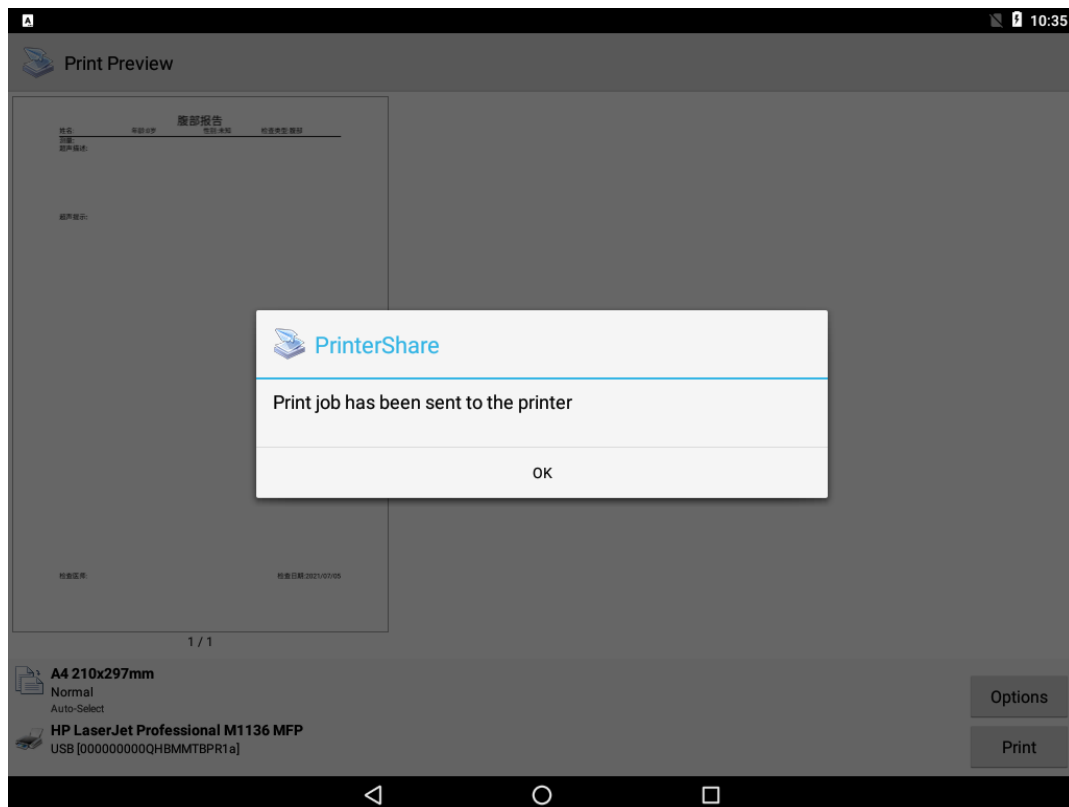
Step 4:

Set printing parameters. Click the Print key after setting up.



Step 5:

Wait for the print to finish.



(Note: Read the PrintShare instructions for more details.)

2.5 Basic operation

The layout diagram of each area of the screen is shown below:



■ Information area

The information area includes patient information, hospital name, transducer model, current examination type, date, examination time and other information.

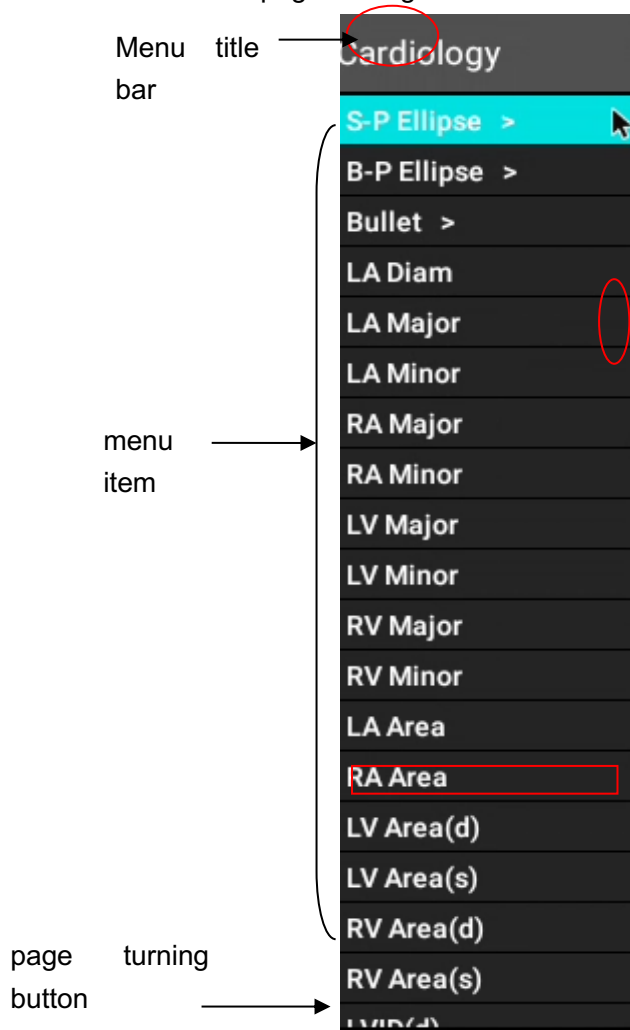
- The name of the hospital
Displays the hospital name. Hospital Name Set path to [Preset] [System Preset] [Hospital info].→→
- Time
Display date and time. Date and time and display format The preset path is [Preset] [System Preset] [Date and Time].→→Check the time as the image freezes while the system freezes.
- The patient information
Display patient name and ID. Enter patient information through the Patient Information dialog box, or import the locally stored patient information data in the patient list page.
- Transducer
Displays the current transducer.
- Exam type
Displays the type of examination currently in use, such as abdomen.

■ Image parameters with the menu area

Image parameters share this area with menus. When no menu is displayed on the screen, this area displays the image parameters of the current imaging modes.

- Menu area
The menu will overwrite the image parameters when it pops up.
Menu operation can be done by cursor and multi-function encoder.
The opening and closing of the menu are controlled by the [Measurement] button.

The menu is divided into several parts, such as menu title bar, menu item and page turning button. As shown below:



- Image parameter area
Displays image parameters for the currently active window. If there is more than one imaging mode in the current active window, the image parameters of each imaging mode are displayed according to the imaging mode. For the imaging parameters displayed in each mode, see corresponding Imaging mode.

■ Image area

In the image area, images of various modes, transducer direction markers, time line (in M mode), PW sampling line (in PW mode), coordinate axis (including depth coordinate axis and time coordinate axis) are displayed. Meanwhile, annotation information, body standard, measurement and gray scale bar are also displayed here.

■ Image thumbnail area

Displays thumbnails of stored images or movies under the current patient examination.

■ Thumbnail control area

- Page flipping: Save thumbnails of images for more than one page by pressing or



Button to scroll down or up;

- Delete: Select one or more thumbnails and click  Delete images;
- Export: Select one or more thumbnails and click  Export images to storage devices such as a usb flash drive.
- Soft key area
Soft key operation:
Rotate by the knob and press to control.

3 Pre Scan

3.1 Patient Input

- New Patient Information: Start a new patient examination. Enter the new patient information and start the examination. For details, see "4.2 Patient Information"
- New patient examination: that is, a new examination is performed on the original patient. The patient information can be obtained from the patient list through the [patient list] key.
- Anonymous scan: You can directly perform scanning without entering a name. The patient ID is automatically generated by the system or can be entered manually. See "4.6 Anonymous Patient Examination";

The general process of examination is as follows: enter patient information to select the type of examination and transducer to select the scan mode to start the examination. → → →

When starting a new patient examination, you should first enter as much patient information as possible.

Patient information

- To display Patient Information:
Press [Patient Information] to enter the patient information dialog box.
- Patient Information is displayed
After inputting the patient information, click "OK" on the "Patient Information" interface to save the information setting and exit.

In the "Patient Information" interface, click "Exit" or directly press  Key, do not save the current information and exit.

3.1.1 New Patient Information

Patient Informatio interface is as follows:

Patient Info					
Patient Id	2024520171	Birth Date	mm/dd/yyyy	Age	Years
First Name		Last Name		Middle Name	
Gender	Unknown	Exam Doctor			

ABD	CARDIOLOGY	GYN	OB	KIDNEY	UROLOGY	VAS	SMALLPARTS	CAROTID	MS
Study Description									
Primary Indications									
Secondary Indications									
Height				cm					
Weight				kg					

New Patient	New Exam	End Exam	Exam List	Worklist	OK	Exit
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The patient information interface contains the following information:

Basic information

- The patient ID

Once a patient ID has been entered for confirmation, no further ID changes are allowed. The ID can be automatically created or manually entered.

- Manually creating an ID

Manually enter the patient ID in the basic information field.

- Automatic ID creation

The system can automatically create an ID for the patient before starting the examination without manually entering the patient ID.

- The name

Patient ID is required. Patient name is optional.

- Gender

Click to select male, female or Unknown.

- Birthday:

Click the input box and the system will display the date control (as shown below). Click "OK" to confirm after the date is selected.

			January 1900						
			S	M	T	W	T	F	S
Aug	30	2008	1	1	2	3	4	5	6
Sep	01	2009	2	7	8	9	10	11	12
			3	14	15	16	17	18	19
Oct	02	2010	4	21	22	23	24	25	26
			5	28	29	30	31	1	2
			6	4	5	6	7	8	9
									10

- Age:
 - Automatic calculation: the system will calculate the patient's age according to the patient's birthday and display it in the box. The age system can be "year", "month" or "day".
 - You can also enter it manually.

- Application Type

The system supports several types of examination applications: abdomen, obstetrics, gynecology, small organs, etc.

After an application type is selected, detailed information requirements for the application type are displayed on the screen. The information required for each detection type is different.

- Public Information:

This information is available for any type of detection.

Inspection Enter the description.

Description:

Chief complaint: State the reason for performing the ultrasound.

Past medical history: Enter client's past history.

Function button:

[End examination] : Cancel the examination of the current patient.

[New Patient] : Click to clear the patient information in the "Patient Information" interface, create a new patient and input the information.

[New Check] : Click to clear the information of the currently selected patient. Create a new exam for the current patient.

[CONFIRM] : Save the patient information and exit.

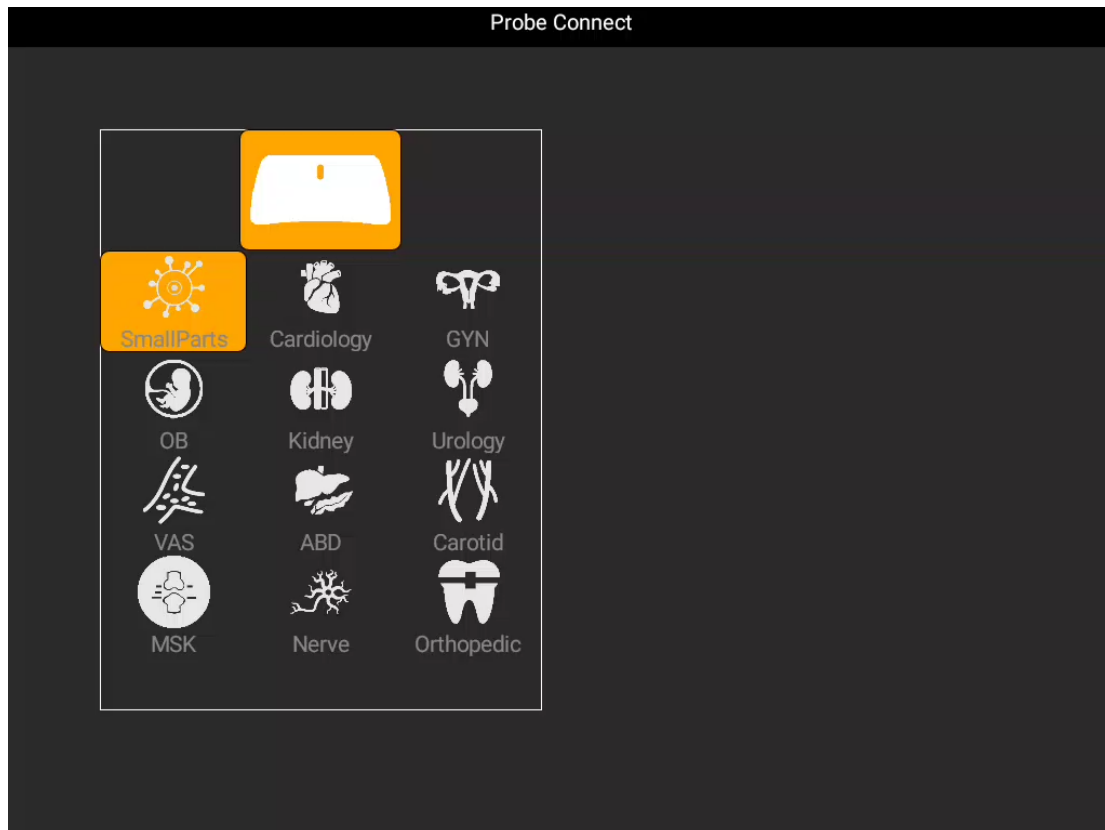
[Exit] : Cancel the input of patient information and exit.

[Work List] : Click to enter the work list interface, and read the basic information of the patient directly from the server of the hospital information system through the DICOM.

3.2.2 Application and transducer selection

Select transducer and Application

(1) Click the key to open the dialog box as shown below:



(2) Select transducer and application.

Click "Check Type Preset" to enter the "Check Type Preset" page. For details about how to check the preset type, see 11.2Preset

Click Exit or  Exit the dialog box.

3.3 Select imaging mode

Select the image mode through the corresponding button under image Mode.

For details on the operation in each scan mode, please refer to the related section of Image Parameter Control.

3.4 End Examination

If the patient's examination needs to be terminated during the ultrasound examination for some special reasons, the examination can be terminated by clicking "End examination" in the patient information dialog box:

1. Click "Patient Information" to enter the "Patient Information" dialog box.
2. Click "End check".

After the preceding operations are complete, the check is cancelled, all data of the check is saved, and the status of the check is changed to Cancel.

3.5 Anonymous patient examination

When you start the system, you will enter the anonymous exam mode. If you click End exam, you will also enter the anonymous exam mode. In this mode, ID cannot be produced and report cannot be exported.

4 Image optimization

4.1 Image mode switching

model	instructions
[B]	Click to enter image B mode.
"2 b"	Click to enter double B mode.
【 B&M 】	Click to enter M mode.
【 Color 】	Click to enter B+Color mode.
[Power]	Click to enter B+Power mode.
"PW"	In B mode or B+Color (Power) mode scanning state, click to enter the sampling pre-adjustment state.

4.2 Adjustment of image parameters

Screen brightness can be adjusted by pressing FN+O/P and menu button [Function] - [Brightness]

Purpose	Optional operation
Change image brightness	Adjust the gain Adjust the TGC corresponding to the target region
Change the gray scale image effect	Adjustable dynamic range Adjust the effect Adjusting frame correlation Double click the [TGC] for one-key optimization
Improve gray scale image frame rate	Reduce depth
Changed the effect of blood flow image display	Adjust color frequency Adjust the scale Regulate blood flow Adjust the afterglow Adjust the map Regulating wall filtering Adjusting priority

4.3 B mode image optimization

B Mode is the most basic imaging mode, which displays live anatomical sections of tissues and organs.

4.3.1 B mode operation

1. Enter patient information and select transducer and examination type.
2. Press the [B] mode button to enter.
3. Adjust the image parameters to obtain the optimized image.
4. Perform other operations (such as measurements and calculations) to obtain necessary data information.

4.3.2 B mode image parameters

During B mode image scanning, the image parameter area on the left side of the screen provides real-time parameter information:

The parameter name is on the left and the current value is on the right.

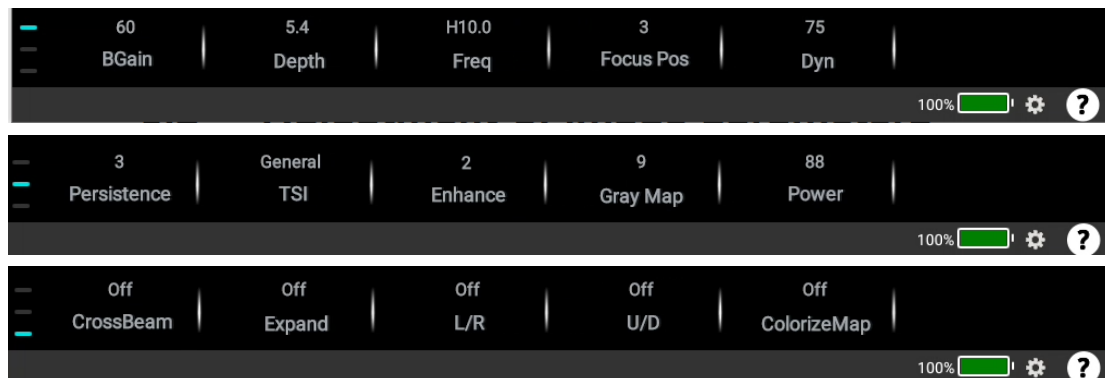


Real-time information	frequency	Dynamic range	gain	Frame rate	Depth
Corresponding parameters	frequency	Dynamic range	gain	Frame rate	Depth

In B-mode image scanning, the following parameters can be adjusted:

Adjustment	Parameters
Control panel adjustment	Gain, one key optimization
Soft key	Depth, dynamic range, extended imaging, effects, extended imaging, sound power, frame correlation, gain, deflection
Parameter area adjustment	Frequency, dynamic range, gain, frame correlation, depth

4.3.3 B mode image optimization



4.3.3.1 Gain

The total gain of the image in 2d mode. The gain value is displayed in the image parameter area on the left side of the screen in real time.



Turn the knob on the control panel, clockwise adjustment increases gain, counterclockwise adjustment decreases gain;

Click "Gain", the adjustment slider appears above, slide right gain increases, slide left gain decreases;



Click the image parameter area [Gain] to highlight the display. Adjust the gain value.

The parameters can be adjusted from 0 to 100.

Increasing the gain increases the brightness of the image, and more echo signals can be observed, but it also brings more noise.

4.3.3.2 Depth

Used to adjust the depth of the image display. The depth value is displayed in the image parameter area on the right side of the screen in real time.

Click "Depth", the adjust slider appears, slide right depth increases, slide left depth decreases;

Click "Depth" in the parameter area of the image to highlight it. At this time, you can adjust the depth through the multi-function knob.

As the depth increases, the frame rate decreases.

4.3.3.3 TGC

The depth gain is segmented to compensate for the attenuation caused by increasing tissue depth.

Click the [TGC] key, and 8 sections of control slider appear at the right end of the screen, corresponding to the segmented image of the corresponding depth. On the touch control panel, push the slider to the right to improve the gain, and the image brightness in the corresponding area increases. Push the slide rod to the left to reduce the gain, and the image in the corresponding area darkens.

By adjusting the signal gain in a specific depth range, the tissue image echo is uniform.

4.3.3.4 Frequency

Switch the transducer frequency in Doppler mode.

Adjust in the image parameter area.

The range of Doppler mode frequency of different transducers is different, and the transducer frequency should be selected according to the need of detection depth and tissue characteristics.

The higher the frequency, the higher the resolution and sensitivity, but the lower the penetration.

4.3.3.5 Extended imaging

Increase the scanning range of the transducer.

Click "Extended Imaging" to turn on or off the extended imaging function.

Image frame rate decreases after extended imaging is enabled.

4.3.3.6 Dynamic range

Adjust the contrast of black and white images, compress or expand the gray scale display range.

Click "Dynamic Range" to appear the adjustment slider, sliding right range increases, sliding left range decreases.

Click the image parameter area [Dynamic Range] and highlight it. At this time, you can adjust the range through the multi-function knob.

The parameters can be adjusted from 30 to 120, and the step size is 5.

The larger the dynamic range, the darker the overall image, the less contrast, and the increase in noise.

4.3.3.7 Frame rate

Image optimization is carried out by stacking and averaging B images of adjacent frames.

Click "Frame Correlation", the adjustment slider appears, slide right correlation increases, slide left correlation decreases;

The system provides 8 stalls for frame correlation processing. 0 indicates that frame correlation processing is disabled.

Reduce image noise, optimize the image, make the image more delicate.

Loss of specific information may result.

4.3.3.8 Image flip

By changing the way the image is displayed to get a better viewing Angle.

Vertical flip and horizontal flip can be adjusted.

Click "Horizontal Flip" and "Vertical Flip" to adjust.

The flip state is displayed below the button, and the image direction can also be identified by the screen "Q" mark. The "Q" mark in the upper left corner is the default image direction of the system.

This feature works for real-time, frozen and movie playback images.

4.3.3.9 Gray scale

Adjust the contrast of black, white and gray scale to optimize the image.

Click the [Effect] button to adjust;

The system offers 6 different scales.

This feature works for real-time, frozen and movie playback images.

4.3.3.10 Sound power

Adjust the power emitted by the transducer.

Click "Sound Power", there is an adjustment slider, sliding power to the right increases, sliding power to the left decreases;

The parameters can be adjusted from 10% to 100%, and the step size is 6%.

With the increase of sound power, the overall brightness of the image increases evenly, and the detectable depth also increases.

4.4 B-M image optimization

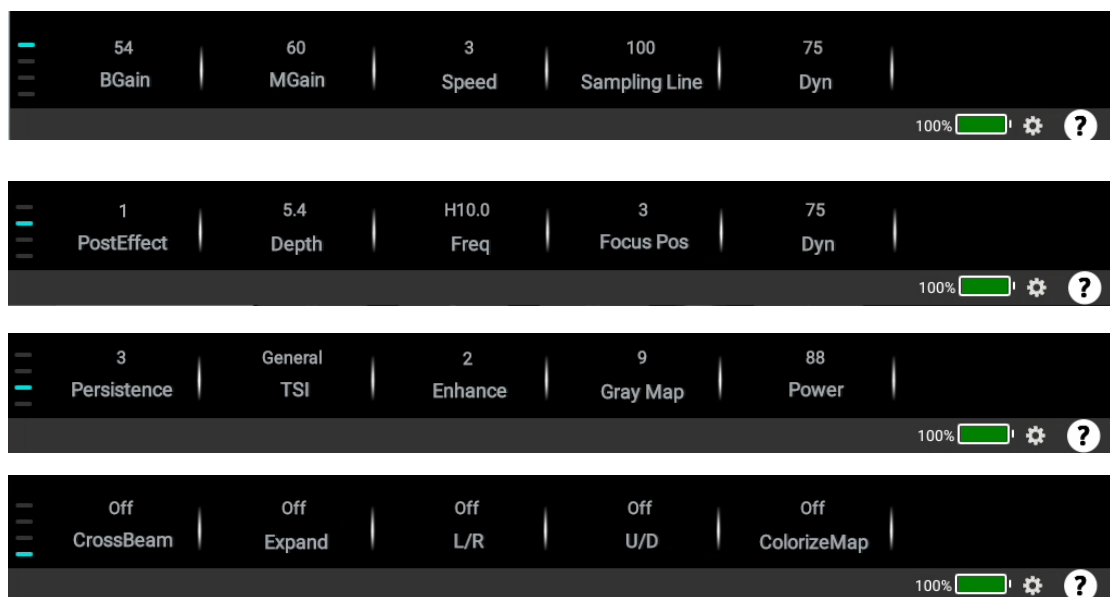
4.4.1 BM mode parameters

Parameter adjustment of B image and M image in B-M mode is independent (some parameters are shared, such as frequency, TGC and depth).

Parameter area of B-M mode:

[B]	M
Freq	3.5
Dyn	75
Gain	60
FR	12
Dep	16.0cm
[M]	
Dyn	75
Gain	60
Speed	2

4.4.2 B-M mode image optimization



- The corresponding image parameters can be adjusted by [knob] rotation. See B mode image optimization and M mode image optimization for details.
- Sampling line adjustment:

When entering B-M mode from B mode (including 2B), sampling line is required. The position of the sampling line can be adjusted by touching the control panel, and the adjustment of sampling line is finished by pressing the knob on the control panel. To re-adjust the sampling line, press the knob again to enter the sampling line selection state.

4.4.2.1 Gain

Adjust the gain of M image, and the gain value is displayed in the image parameter area on the left side of the screen in real time.



Turn the knob on the control panel , clockwise adjustment increases gain, counterclockwise adjustment decreases gain;



Click the image parameter area [Gain] to highlight the display. Adjust the gain value.

The parameters can be adjusted from 0 to 100.

Increasing the gain increases the brightness of the image, and more echo signals can be observed.

4.4.2.2 M Mode scan speed

Control the scan speed of M mode, and the scan speed value is displayed in the image parameter area on the left side of the screen in real time.

Adjust the scan speed on the soft key.

The system provides scanning speed of three gears, the smaller the value, the faster the refresh speed.

Finer observations can be obtained, for example by changing the scanning speed to detect anomalies in the cycle.

4.4.2.3 Contrast

Adjust the contrast of black, white and gray scales to optimize the image.

Adjust through the [Contrast] item on the soft key.

The system offers 6 different effects.

This feature works for real-time, frozen and movie playback images.

4.4.2.4 Dynamic range

Adjust image contrast resolution, compress or expand gray scale display range. Dynamic range values are displayed in the image parameter area on the left side of the screen in real time.

Adjust by [dynamic range] item on the soft key;

Or adjust it in the image parameter area.

The parameters can be adjusted from 30 to 120, and the step size is 5.

The larger the dynamic range, the darker the overall image, the less contrast, and the increase in noise.

4.4.2.5 M line

Adjust the position of the M sampling line.

Slide adjustment in touch control panel

4.5 Color mode image optimization

Color blood flow mode is used to observe color blood flow and provide information of blood flow direction and blood flow velocity.

In general, the color above the baseline of the color bar indicates blood flow to the transducer, and the color below indicates blood flow away from the transducer. The brighter the color, the faster the blood flow, and the darker the color, the slower the blood flow.

4.5.1 Color mode operation

1. Press [Color] mode button to enter B+Color mode state.
2. During the scanning process, image parameters are adjusted to obtain the best optimized image.
3. Perform other operations (such as measurements and calculations) to obtain necessary data information.

4.5.2 Color mode image parameters

During Color mode image scanning, the image parameter area on the left side of the screen provides real-time parameter information:



[B]	M
Freq	H10.0
Dyn	75
Gain	54
FR	10
Dep	5.4cm
[C]	
Freq	6.0
Gain	59
WF	4
Vel	14.0cm/s

Real-time information	frequency	gain	Wall filtering	speed
Corresponding parameters	frequency	gain	Wall filtering	scale

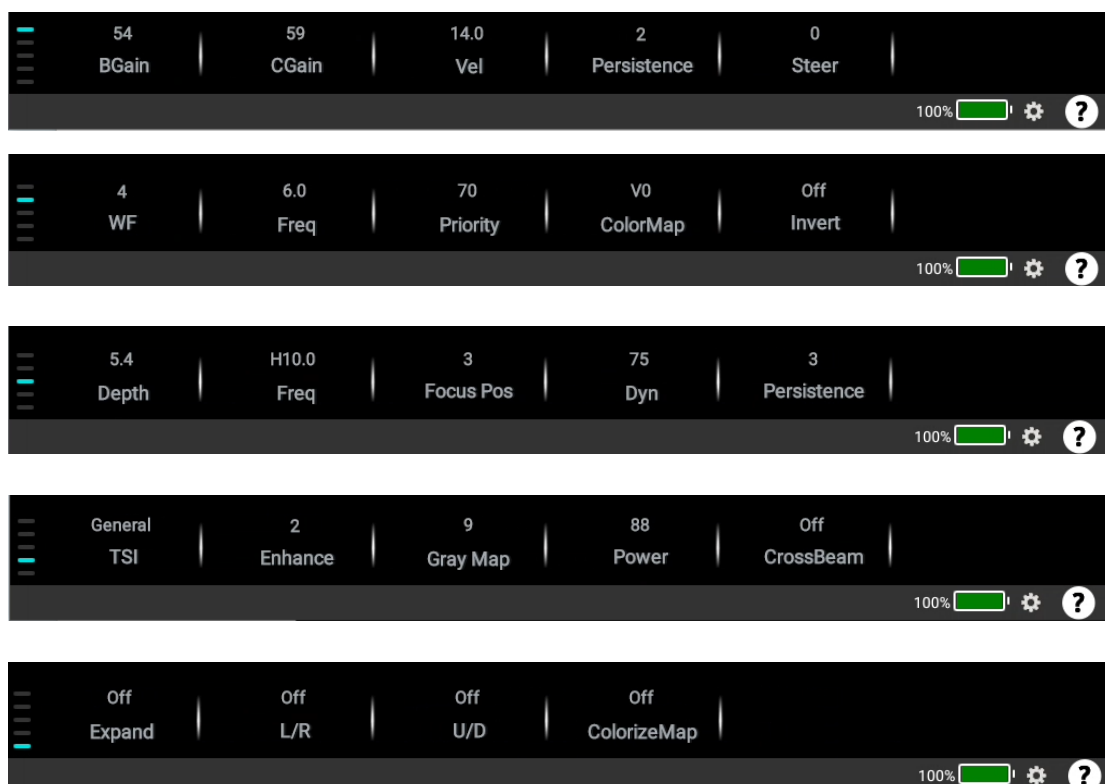
In Color mode imaging, the following parameters can be adjusted to optimize the image:

Adjustment	Parameters
------------	------------

Adjustment	Parameters
Control panel adjustment	gain
Soft key to adjust	Frequency, color priority, baseline, gain, atlas, velocity, wall filtering, flip, afterglow, deflection

Color mode shares the transducer sound power of B mode. Since Color mode is based on the superposition of two-dimensional (B) mode and Doppler mode, the two images change synchronously during amplification or depth adjustment.

4.5.3 Color mode image optimization



When imaging in Color mode, you can switch the image optimization menu between B mode and Color mode by pressing [knob 3]

4.5.3.1 gain

Used to adjust the total sensitivity of blood flow signal. The gain value is displayed in the image parameter area on the left side of the screen in real time.

Click the image parameter area [Gain] to highlight the display.



Adjust the gain value.

The parameters can be adjusted from 0 to 100.

4.5.3.2 Frequency

Switch the transducer frequency in Doppler mode.

Adjust in the image parameter area.

The range of Doppler mode frequency of different transducers is different, and the transducer frequency should be selected according to the need of detection depth and tissue characteristics.

The higher the frequency, the higher the resolution and sensitivity, but the lower the penetration.

4.5.3.3 Deflection

Used for tilting color blood flow images left and right to get more information without moving the transducer.

Adjust through the "Deflection" item in the menu.

Different transducers have different deflection angles.

Change the incidence direction of the sound beam in color mode, so as to change the Angle between the sound beam and the direction of blood flow.

Effective only for linear array transducers.

4.5.3.4 Afterglow

The image is time smoothed to optimize the image.

Adjust through the "Afterglow" item in the menu.

The system provides 5 positions of afterglow adjustment, 0 means that afterglow control is not enabled, the larger the value is, the more obvious the afterglow adjustment is.

4.5.3.5 Speed

Display the velocity range of blood flow.

Adjust through the "Speed" item in the menu.

The adjustable range varies with frequency, transducer and depth, and needs to be adjusted according to the specific situation.

After adjustment, color blood flow image can be displayed more clearly and accurately.

Low velocity range should be used for measuring low velocity flow and high velocity range should be used for measuring high velocity flow.

4.5.3.6 Baseline

Adjust through the "Baseline" item in the menu.

Positive values show a larger range of signals below the baseline, negative values show a larger range of signals above the baseline.

This feature works for real-time, frozen and movie playback images.

4.5.3.7 Flip

Set the color blood flow display mode, which will flip the color ruler to change the blood flow display mode on the image.

Switch the flip function on and off through the [flip] item on the menu.

If "automatic flip" is selected in "[Preset] [Image Parameter Preset]", the color map will be opposite.

This feature works for real-time, frozen and movie playback images.

4.5.3.8 Map

A group of color image display effect parameters, according to the need to switch different spectrum can get more comprehensive blood flow information.

Select from the [Graph] item on the soft menu or image menu.

Click the color step bar in the parameter area to switch the map for selection.

The system provides 21 different kinds of atlas for selection: V group provides 11 kinds of ordinary atlas, VV group provides 10 kinds of two-dimensional atlas.

This feature works for real-time, frozen and movie playback images.

4.5.3.9 Wall filtering

Click "Wall Filtering" on the menu to adjust;

The image parameter area is adjusted.

The system provides 8 gears of wall filtering, which needs to be selected according to the actual situation and different transducers.

4.5.3.10 Priority

Used to set the level of blood flow display, select black and white or color blood flow display first.

Click "Priority" on the menu to adjust.

The parameters can be adjusted from 0 to 100%, and the step size is 10%.

4.6 Power mode image optimization

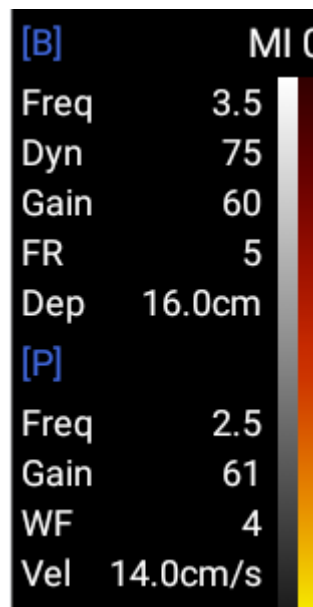
Power mode (i.e., energy Doppler mode) is used to show the density and energy information of red blood cells in blood flow within a certain period of time, and is represented by colors of different brightness to provide perfusion information of blood flow but not speed information.

4.6.1 Power mode operation

1. Press the [Power] mode button to enter B+Power mode.
2. During B+Power scanning, image parameters are adjusted to obtain the best-optimized image.
3. Perform other operations (such as measurements and calculations) to obtain the necessary data information.

4.6.2 Power mode image parameters

During image scanning in Power mode, the image parameter area on the left side of the screen provides real-time parameter information:



Real-time information	frequency	gain	speed	Wall filtering
Corresponding parameters	frequency	gain	scale	Wall filtering

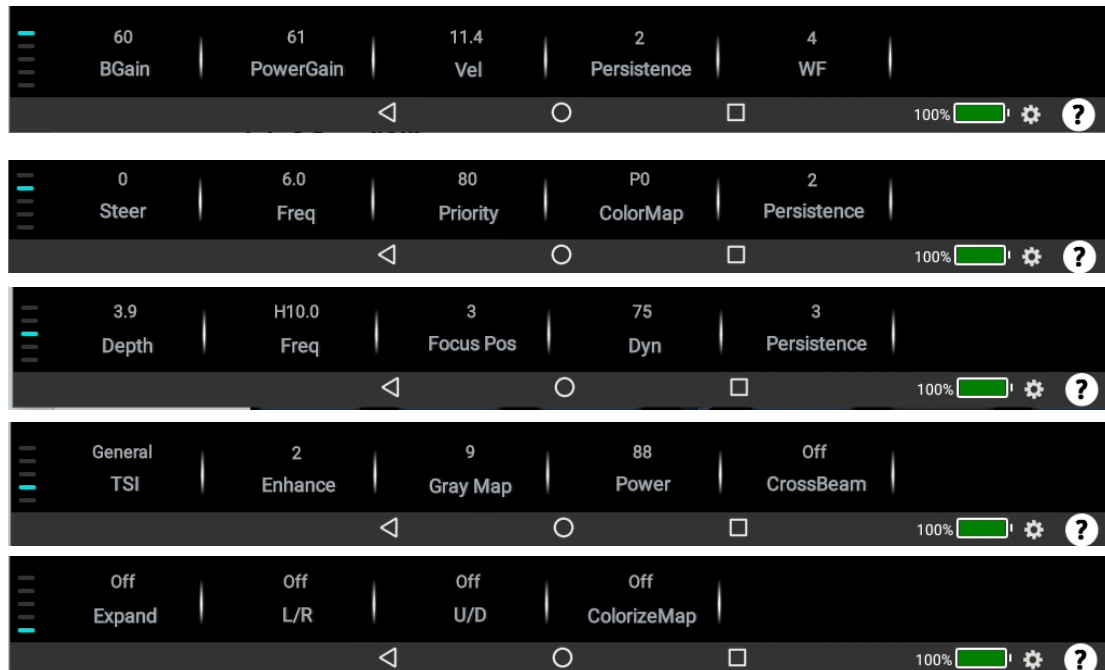
In Power mode imaging, the following parameters can be adjusted to optimize the image:

Adjustment	Parameters
Control panel adjustment	Gain
Soft key to adjust	Frequency, color priority, gain, atlas, speed, wall filtering, afterglow, deflection, frame correlation

- When imaging in Power mode, use [knob] to switch between B mode and Power mode menu to optimize the image.

Only the image parameters independently adjusted in Power mode are described below.

4.6.3 Power mode image optimization



4.6.3.1 Gain

Adjust the total sensitivity of blood flow energy signal, and the gain value is displayed in the image parameter area at the top of the screen in real time.

Click the image parameter area [Gain] to highlight the display.  Adjust the gain value. The parameters can be adjusted from 0 to 100.

4.6.3.2 Map

Color map is a set of color image display effect parameters, including: Power map.

Adjust through the [Graph] item on the soft menu or image menu.

The system provides four different effect maps: P3-3 is the energy map.

The energy map provides the perfusion information of the image and is sensitive to low speed blood flow.

Directional energy maps show directional information of blood flow.

This feature works for real-time, frozen and movie playback images.

4.6.3.3 Priority

Used to set the level of blood flow display, select black and white or color blood flow display first.

Click "Priority" on the menu to adjust.

The parameters can be adjusted from 0 to 100%.

4.6.3.4 Frequency

Switch the transducer frequency in Doppler mode.

Adjust in the image parameter area.

The range of Doppler mode frequency of different transducers is different, and the transducer frequency should be selected according to the need of detection depth and tissue characteristics.

The higher the frequency, the higher the resolution and sensitivity, but the lower the penetration.

4.6.3.5 Wall filtering

Click "Wall Filtering" on the menu to adjust;

The image parameter area is adjusted.

The system provides 8 gears of wall filtering, which needs to be selected according to the actual situation and different transducers.

4.6.3.6 Afterglow

The image is time smoothed to optimize the image.

Adjust through the "Afterglow" item in the menu.

The system provides 5 positions of afterglow adjustment, 0 means that afterglow control is not enabled, the larger the value is, the more obvious the afterglow adjustment is.

4.6.3.7 Speed

Control the refresh speed, scan speed value is displayed in the image parameter area on the left side of the screen in real time.

Adjust the scan speed on the soft key.

The system provides scanning speed of three gears, the smaller the value, the faster the refresh speed.

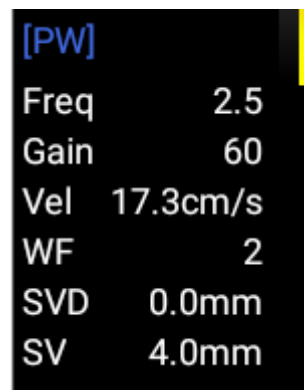
4.7 PW image optimization

PW mode (Pulse Doppler mode) is used to provide information about the direction and velocity of blood flow. The obtained spectral map shows time on the horizontal axis and Doppler frequency shift on the vertical axis.

PW mode has the function of distance gating, which can display the velocity, direction and nature of blood flow at a certain depth.

4.7.1 PW mode operation

1. Press the button of [PW] mode to enter the sampling pre-adjustment state, and the sampling state will be displayed in the image parameter area on the left side of the screen, as shown below:



The sampling correction Angle will also be displayed at the top of the image as shown in the following table **Angle 0°** ,

Real-time information	SVD	SV	Angle
Corresponding parameters	Doppler gate depth	Doppler gate size	Correction Angle

2. Touch the control panel to adjust the sampling line position, press the multi-functional encoder to exit the adjustment interface.

4.7.2 PW mode image parameters

Parameter information provided in the parameter area of PW image:

[PW]	
Freq	6.0
Gain	60
Vel	11.4cm/s
WF	2
SVD	0.0mm
SV	1.5mm

Real-time information	frequency	Gain	Speed	Wall filtering	SVD	SV
Corresponding parameters	frequency	Gain	Pulse repetition rate	Wall filtering	Doppler gate depth	Doppler gate size

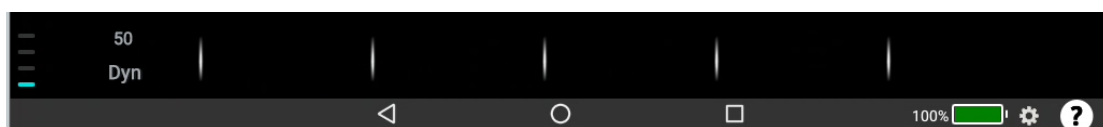
In PW mode imaging, the following parameters can be adjusted to optimize the image:

Adjustment	Parameter
Control panel adjustment	gain
Soft key to adjust	Volume, sound power, automatic calculation parameters, ruler, baseline, fast correction Angle, wall filtering, frequency, dynamic range, speed, deflection, automatic calculation

- In PW mode imaging, press [knob 2] to switch between different image modes of the image optimization menu.
- PW mode images share the transducer sound power of B mode.
- When the image depth is adjusted, the B image changes synchronously with the PW image.

4.7.3 PW mode image optimization





4.7.3.1 Gain

Adjust the output signal size of the spectrum graph, and the gain value is displayed in the image parameter area on the left side of the screen.



Rotate knob , clockwise adjustment increases gain, counterclockwise adjustment decreases gain;

Adjust in the image parameter area.

The parameters can be adjusted from 0 to 100.

4.7.3.2 Frequency

Switch the transducer frequency in Doppler mode, and the frequency value is displayed in the image parameter area on the left side of the screen in real time.

Adjust through the [Frequency] item on the menu;

Adjust in the image parameter area.

The frequency adjustment range of different transducers is different, which needs to be selected according to the need of detection depth and tissue characteristics.

4.7.3.3 Automatic calculation and automatic calculation parameters

Switch on and off the automatic calculation of spectrum map through the "Automatic Calculation" item on the soft menu or image menu;

Click the [Automatic Calculation parameters] item on the soft menu or image menu, and select parameters in the pop-up dialog box.

In real-time state, the automatic spectrum results obtained under the latest cardiac cycle are always displayed.

In the frozen state and movie playback, the measurement results corresponding to the current automatic spectrum measurement area are displayed.

4.7.3.4 Scale

Adjust by [Ruler] item on the soft menu.

The adjustable range of ruler varies with frequency, transducer and depth, and needs to be adjusted according to the specific situation.

After adjustment, color blood flow image can be displayed more clearly and accurately.

Low velocity range should be used for measuring low velocity flow and high velocity range should be used for measuring high velocity flow.

4.7.3.5 Speed

Adjust through the Speed item on the soft menu or image menu.

The system provides scanning speed of 6 gears, the smaller the value, the faster the refresh speed.

4.7.3.6 Wall filtering

Adjust through the [Wall Filtering] item on the soft menu or image menu;

Or adjust in the image parameter area.

The system provides 7 gears of wall filtering control, need to choose according to the specific situation.

4.7.3.7 Sound power

Click "Sound Power", there is an adjustment slider, sliding power to the right increases, sliding power to the left decreases;

The parameters can be adjusted from 10% to 100%, and the step size is 6%.

With the increase of sound power, the overall brightness of the image increases evenly, and the detectable depth also increases.

4.7.3.8 Baseline

Adjust through the baseline item on the soft menu.

Adjust the detection speed of different parts to make the blood flow more clear and eliminate aliasing.

Positive values show a larger range of signals below the baseline, negative values show a larger range of signals above the baseline.

This feature works for real-time, frozen and movie playback images.

4.7.3.9 Correction Angle

Adjust through the "Correct Angle" item on the soft menu or image menu.
The system provides an adjustable Angle range of -80° ~ 80° , with a step size of 1° for fine tuning.
This feature works for real-time, frozen and movie playback images.

4.7.3.10 Quick Angle correction

Adjust through the "Quick Correction Angle" item on the soft menu.
The system provides three quick angles for adjustment, -60° , 0° and 60° .
This feature works for real-time, frozen and movie playback images.

4.7.3.11 Dynamic range

Adjust through the dynamic Range item on the soft menu.
The value ranges from 24dB to 72dB, and the step is 2.
This feature works for real-time, frozen and movie playback images.

4.7.3.12 Volume

Adjust volume through the [Volume] item on the soft menu.
The parameters can be adjusted from 0 to 100%.

This feature works for real-time, frozen and movie playback images.

4.7.3.13 Deflection

Adjust the deflection Angle through the deflection item on the soft menu.
The deflection Angle of different transducers is different.
This feature works for real-time, frozen and movie playback images.

4.8 Image parameter presetting

See "11.3 Image Parameter Preset".

5 Display with movie playback

5.1 Image display.

5.1.1 Image magnification

- To zoom in:
In the real-time scanning or frozen image state, click the [Function] [Enlarge] key to enter the magnification state.→
- Amplification and adjustment:
Rotary multi-function encoder to adjust magnification (maximum magnification 10 times): left rotation magnification decreases, right rotation magnification increases.
Exit zoom:
Click "Enlarge" again to exit the enlarge mode.

5.1.2 Freezing

During image scanning, click the [Freeze] button to freeze the image.
When the image is frozen, click the [Freeze] button to unfreeze the image, and the system continues image scanning.

5.1.3 Freeze the image mode switch

- B In image multi-window mode, press [B] key to exit multi-window mode and return to the corresponding of the current active window

5.2 Playback

After the image is frozen, the system supports playback and editing. Also supported is magnification, post-processing, measurement, annotation, and labeling.

The system supports manual playback and automatic playback; Automatic and manual playback modes can be switched.

5.2.1 Enter and exit playback

To enter playback:

Open the movie playback file from the thumbnail area or browsing screen. The system enters the automatic playback state.

To exit playback:

Click the [Freeze] key again to unfreeze the image, return to the scanning state and exit the movie playback;

5.2.2 Playback in 2D mode

- Manual playback:

Enter the playback in 2D imaging mode, and automatically enter the manual playback state. In automatic playback, the manual playback state can be entered by rotating the multi-functional encoder. At this point, the multifunctional encoder is rotated and the stored movie images are successively displayed on the screen.

Click the play button, the playback progress bar moves to the left, the playback order is opposite to the storage order, and the frame number decreases. Click the play button, the playback progress bar moves right, the playback order is the same as the storage order, and the number of frames is increasing. When the image reaches the last frame, rotate the multi-function encoder and the image jumps to the first frame.

- Automatic playback:

Enter: In manual playback state, rotate the multi-functional encoder to start automatic playback, or click "Automatic playback" in the soft key area to start automatic playback.

Exit: In the automatic playback state, click automatic Replay in the soft key area to set the speed to 0 to exit the playback operation.

5.2.3 M mode playback

Enter playback in M imaging mode, click "Manual Playback", and the stored movie images will be successively displayed on the screen.

The multi-function encoder rotates left, the movie playback progress bar moves left, the image moves right, and the earlier stored image is called up. The multi-function encoder rotates right, the movie playback progress bar moves right, the image moves left, and the newly stored image is called up. When the image is rolled to the earliest/latest screen, the multifunctional encoder is rotated for circular playback.

The playback indicator bar at the bottom of the screen (as shown below) :



The switchover between automatic and manual playback is the same as that in B mode.

5.3 Cine Storage

While the image is frozen, press [knob 4] to save the cine loop. After the loop is saved, a thumbnail is displayed in the saved image thumbnail area of the screen.

6 Measurement

6.1 Basic operation

Enter/exit measurement:

Click [Functions] [Measurement] to enter the measurement, and click [Exit] to exit the measurement. →

Results are displayed and updated in the results window.

6.2 Conventional measurement

6.2.1 2D measurements

Measurement	Function
Distance	Distance between two points on the ultrasonic image.
Angle	Angle between two intersecting planes on ultrasonic image.
Elliptical area	Area and perimeter of a closed area on an ultrasound image.
Three distance volume	Volume of the target object.
Trace	Length of a curve on the ultrasonic image.
Area trace	Area and circumference of a closed curve region on the ultrasonic image.

6.2.2 M-Mode measurements

Measurement	Function
Distance	Distance between any two points on a vertical line at a given moment.
Time	Time interval between two points on the M image.
Heart rate	Time interval between 2 cardiac cycles on an M-Mode cardiac image.

6.2.3 Doppler measurements

Measurement	Function
D speed	On a Doppler image, the velocity and pressure difference at a point on the doppler spectrum waveform are measured.

6.3 Application measurement functions

The system provides the following application measurement functions:

- Abdominal measurement: Used to measure parameters of abdominal organs (liver, gallbladder, pancreas, kidney, etc.).
- Obstetric application measurement: used to estimate and measure the gestational age and expected date of delivery, measure and calculate the development indicators of the fetus, and display its development status through the development curve.
- Measurement of gynecological application: used for measurement of gynecological parameters such as uterus, ovary and follicle.
- Application measurement of small organs: mainly used for parameters measurement of small organs such as thyroid.

7 Comments and text

7.1.1 Add comments

1. Type characters:
Click any key on the character keyboard and enter a comment:
2. Position comments:
Under the Edit comment state (the character is white), click  Key, the character turns green, and you can move the character to the position where you want to add a comment. In edit mode, click  Key (the character is green), the comment ends the input state.
 - Add indicator arrow
 1. Click the [Arrow] key, and the indicator arrow appears in the default position of the system in the image window.
 2. Locate the arrow.
Click the arrow and move on the touch control panel to move the arrow position.
 3. Determine the direction of the arrow.
Click the arrow, rotate the multi-function encoder knob, adjust the arrow direction to the applicable direction at a speed of 10° per gear. Press the [Set] key to confirm the arrow setting.
 4. Repeat the above steps to continue adding indicating arrows.

7.1.2 Move annotation

1. Click on the comment you want to move, and the comment turns green.
2. By touching the panel to the target position, the comment moves to the target position and turns white.

7.1.3 Modify annotation

- Modify character comments

In the comment state

Click the original comment and enter a new comment to replace the original comment.

Press the Clear key to delete characters.

Press the [Set] key to confirm the modification and exit the editing state. The color of the comment changes to white.

- **Modify arrow comments**

Click the arrow you want to modify and move on the touch control panel to move the arrow.

Click the arrow to modify, rotate the multi-function encoder knob, change the direction of the arrow, and click the screen to complete the modification.

7.1.4 Delete comments

Click the comment you want to delete, and click the Clear button to delete it individually. [Clear all Comments] Deletes all comment items that have been added.

7.2 Body markers

The body markers indicate the patient's exploratory position and transducer scanning direction and position, which play an auxiliary role in the image description.

The system includes the body standard library of abdomen, gynecology, obstetrics, small organs, nerves and so on.

7.2.1 Add the body

1. Add a single individual label

Click [Functions] [Body standard] to enter the body standard mode, and select the required candidate body standard library through the [Library] item in the soft key area. When the body standard of the current body standard library exceeds one page, search through the page turning of the multi-function encoder.→

Move the cursor to the desired font, and the font becomes yellow.



Press the [Set] key to add the selected font.

2. Adjusting transducer mark:

Change the Angle of the transducer with the multi-functional encoder, adjust the position of the transducer with the touch control panel, and press the [Set] key after confirming it.



3. Press the [Set] key to determine the direction and position of the transducer in the volume scale and exit the volume scale mode at the same time.

8 Patient data management

8.1 Patient information Management

8.1.1 Patient information input

The basic patient information and examination information are entered in the "Patient Information" dialog box. For details, see "4.2 Patient Information".

After inputting the patient information, click [OK] in the "Patient Information" interface to save the patient information in the patient record.

8.2 Image management

8.2.1 A storage medium

Storage media supported by the system:

USB storage devices: U disk, USB mobile hard disk, etc.

Note: The USB flash drive and USB portable hard disk must be fat16, FAT32 or ExFAT file system.
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8.2.2 Image file format

The system supports image file formats including PNG file and AVI file.

The system can save the single frame image file as PNG file. Saved loops will be saved as AVI files.

8.2.3 Storing images

- To store a single frame image:

In the image interface, press the button, a single frame image will be saved.

- Storing loops:

After freezing the screen image, click on the soft key. A loop will be saved.



- The thumbnail area on the right side of the screen displays thumbnails of stored images or loops.

8.2.4 Image thumbnails

After the image is stored, it is displayed in the form of thumbnail in the following situations:

- In the image scanning or frozen state, the thumbnail of the image saved in the current check is displayed in the thumbnail area on the right of the screen. When the thumbnail of the image is saved for more than one page, press **【PageUp】** or **【PageDown】** Button to scroll down or up.
- The Browse screen is displayed, showing thumbnails of images belonging to the same inspection.

8.2.5 Image browsing and processing

Stored patient images can be viewed and processed during the examination.

8.2.5.1 Image browsing

Browse to check all archived images, and to export, delete or process saved images.

- Enter image browsing:
 - During the examination, you can click on the thumbnail bar to view the images saved by the current patient.
 - The Patient List page is displayed. Select a patient information and click review.
- Exit image browsing:

Click "Exit" in the image browsing interface or press  The key.

Basic operation:

- Double-click on the image thumbnail to open the image for processing.
- Function items on the browsing page are described as follows:
 - [Patient Information] Click to enter the "Patient Information" interface to view or edit the information of the currently selected patient.
 - [Export] : The selected image is stored to an external storage device, such as a USB disk.
 - [Delete] : Deletes the selected image.
 - [Exit] : Exit image browsing and return to the main image interface.

8.2.5.2 Image processing

Image processing can be reviewed, enlarged, measured, annotated, playback (for multiple frames of images) and other operations on an archived image. The operation procedure is the same as that in real-time scan. For details, see the description in the corresponding section.

- Enter image processing:
 - In the image scanning or frozen state, double-click the thumbnail of the archived image to enter the image processing state.
 - In the image browsing state, select a thumbnail, click "Open" or double-click a selected thumbnail to enter the image processing state.
- Exit image processing state:
 - Press [Freeze] key to exit image processing and enter real-time scanning state.

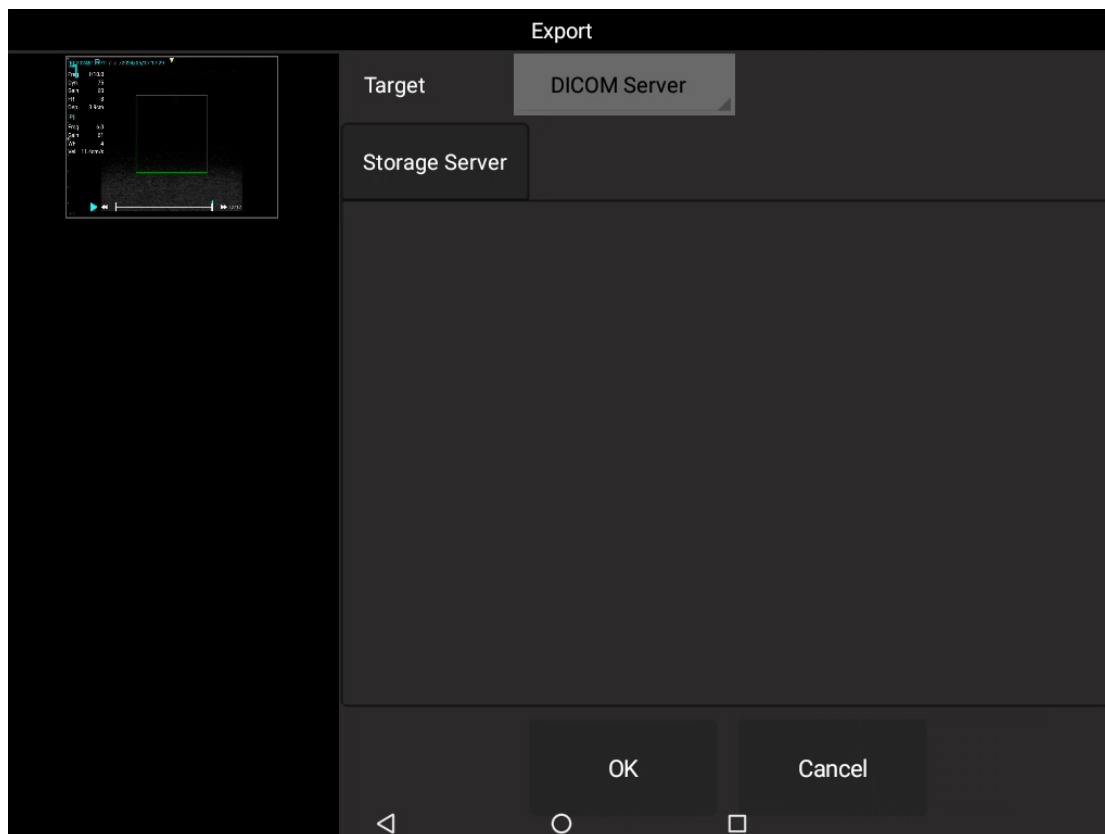
- In the image processing state, the selected image is displayed on the screen after being opened. The image thumbnail shows all of the checks

Image thumbnail, through the function button below can be carried out before and after the

page  , delete, , export  Operation.

8.2.6 Exporting image files

- On the main screen of the system, select a saved image file thumbnail and click in the lower right of the screen  The export dialog box is displayed



Then select the path and click ok.

- On the "Browse" interface, click "Export" to enter the interface and export the selected image.

8.3 Report Management

Report storage:

Patient examination reports are automatically stored in internal storage media by the system.

Print the report:

The inspection report can be printed on a printer. See 3.5 Printers.

8.3.1 Add and remove ultrasound images

■ Add an image:

Click "Image" in the "Report" interface, and the image saved for this check will appear. Select the image to be added click "Select" to add it to the report.

■ Delete image:

Click "Delete" to appear the buttons with the same image arrangement as in the report. Click to delete the corresponding image.

Click "Clear" to delete all images that have been added.

8.3.2 Edit ultrasound prompts and description

■ Add a text template:

1. Click "Diagnostic Template" on the "Report" interface to display the template directory. Select the required text template and click "Select" to add it to the report. If multiple templates need to be added, select add. Text templates can be added cumulatively.

2. Click "Edit" to modify the added text.

[Cancel]: Cancel editing and exit editing state.

[OK]: Save the editing content and exit the editing state.

Reset: Clear the content and re-enter the new content.

■ Template management:

Click "Diagnostic Templates" [Management] to enter the "Template Management" interface. →

- Modify a template: Expand the template menu, select the template to be modified, modify it in the edit box, and click save.
- Delete template: Select the template to be deleted in the menu bar and click "Delete". In the prompt dialog box, click "OK".
- To add a template category: click "Add Category", enter the category name and click "Save" to add the template category at the end of the menu.
- Add template: Select the category of the new template in the menu, click "Add Template", enter the name and content of the new template, and click "Save" to add the new template to the category. The template can be directly used to add ultrasonic hints and super description in the future.

Click finish to exit the "Template Management" interface.

- You can also click "Edit" to enter the text content without using the text template.

8.4 Patient List Management

On the "Patient List" interface, you can browse and delete patient records/examinations.

Enter the patient list:

Click the [Functions] [Patient List] key to enter directly; → Or,

In the "Patient Information" interface, click the "Patient List" button

In the "Image Browsing" interface, click the "Patient List" button.

The following information is displayed on the Patient List interface:

9 DICOM

- DICOM basic functions: DICOM connection verification, DICOM task management, DICOM storage, DICOM Printing)
- Worklist
- DICOM structured reporting

9.1 DICOM preset

9.1.1 DICOM local presets

Set the local DICOM service properties:

1. Click check the logo in the upper left corner of the main screen to open the preset menu.
2. Click the "DICOM Local" option, and the interface appears as follows:

The screenshot shows a software interface titled "Preset". On the left is a vertical sidebar with buttons: "System Preset", "Image Preset", "Exam Preset", "System Upgrade", "DICOM Local" (which is highlighted in red), "DICOM Server", "DICOM Service", and "Exit". The main area of the window is titled "Localhost DICOM Service Property" and contains three input fields: "AE Title" (empty), "Port" (containing the value "104"), and "Package Size (byte)" (containing the value "16384"). At the bottom right of the main area is an "Apply" button.

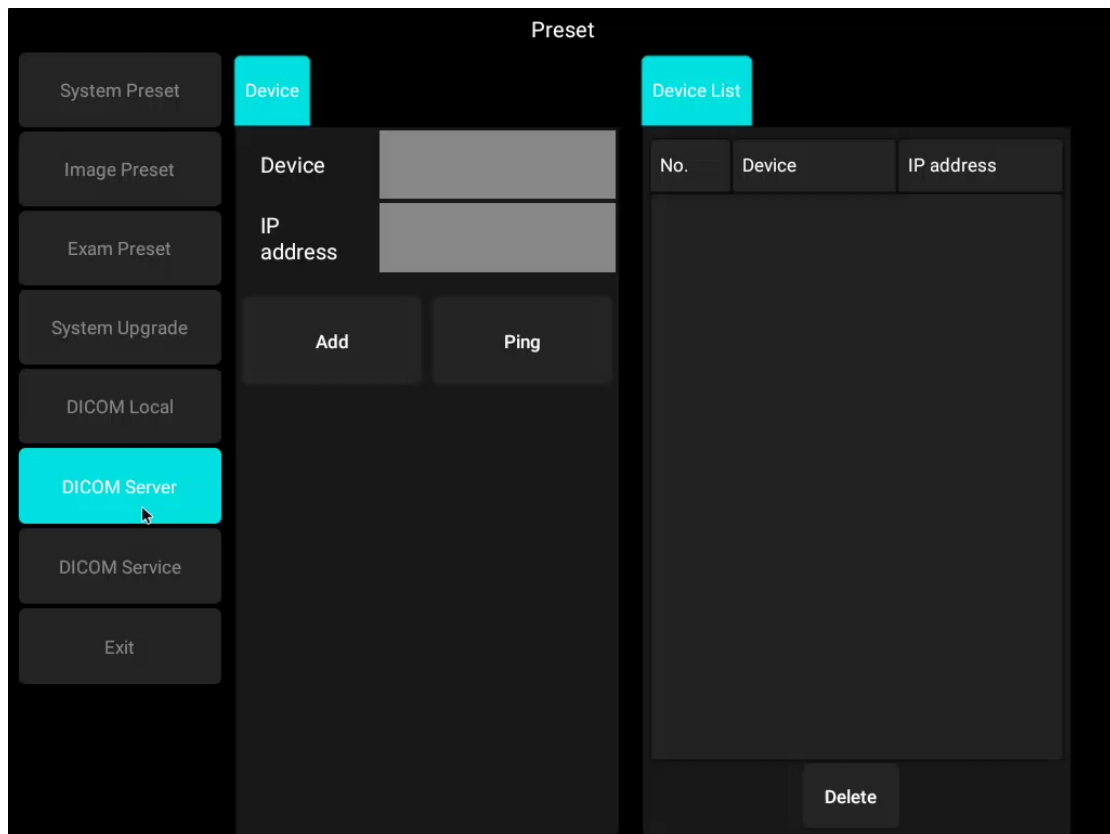
3. Preset of local DICOM service attributes:

Name	Explanation
AE Title	The name of the applied entity of the ultrasound system. The AE Title here must be the same as the AE Title of the ACCEPTABLE SCU set on the server.
Port	The local port must be consistent with the server port.
Package size (bytes)	Maximum PDU packet size. The value ranges from 16384 to 65536. The default value is 32768.
Apply	Save this setting.

9.1.2 DICOM server presets

Add and delete the DICOM server and set the name and IP address of the server:

1. Click "DICOM Server", the interface is as follows:



2. Perform server provisioning:

Name	Explanation
Device name	Name of the device that supports the DICOM service.
IP address	Network address of the remote server.
Ping	Press Ping to confirm whether the device is connected.
Add	Add a server to the server list.
Delete	Deletes the selected server from the server list.

Note:

If the server name is the same as a record already in the DICOM server list, the system will prompt an error message

"Server name", click "OK" and enter a new name.

9.1.3 DICOM service presets

Open the preset menu and click "DICOM Service" to set the properties of DICOM service.

9.1.3.1 Storage Service Provisioning

1. The Storage Service page is displayed. Preset → DICOMService → Storage service.
2. Select the device name. The device to be selected is from the preset DICOM server (for details, see "10.1.3DICOM Server Preset"). Enter AE Title and port as required.
 - Click "Add" to add the service to the service list.
 - Select a service in the service list, modify the value in the parameter interface, and click "Update" to update the corresponding parameter in the service list. Click "Cancel" to cancel the change;
 - Select a service in the service list and click "Delete", the service will be deleted.
 - Select a service in the service list and click "Set Default Server". Then the server is the default server of the service.
3. Select a service in the service list and click "Verify" to verify whether the connection is normal.
4. Click "Apply" to save the Settings.

The screenshot shows the 'DICOM Service' configuration window. The 'Storage Service' tab is selected. The 'Device' field is a dropdown menu. The 'Service Name' field is empty. The 'AE Title' field is empty. The 'Port' field contains the value '104'. The 'Compression Mode' dropdown is set to 'Uncompressed'. The 'Add', 'Cancel', and 'Update' buttons are visible. Below the input fields is a table with columns: No., Device, Service Name, AE Title, Port, and Default. The table is currently empty. At the bottom of the main area are buttons for 'Delete', 'Default', 'Verify', and 'Verify Undo!'.

DICOM storage service parameter Settings:

Name	Explanation
Device name	After the service is set on the DICOM Server Preset page, the device name will be displayed in the drop-down list and the configured storage server will be selected.
DICOM service name	The default value is server-storage, which can be changed.
AE Title	Application entity name. The name of the application entity must be consistent with that of the storage server.

Name	Explanation
Port	Communication port, DICOM Common port 104 by default.
Add	Add the DICOM service to the service list.
Cancel	Cancel the modified data Settings.
Update	Select the item in the service list and modify the value in the parameter interface. Click "Update" to update the parameter in the service list.
Delete	Deletes a service from the service list.
Default Server	Select an item from the server list and click "Set Default Server" to set the default server.
Validation	Verify the normal connection of two DICOM application entities at the application layer.
Apply	Save the Settings.

9.1.3.2 Work List Service Presets

1. Enter the "DICOM Service" page (as shown below) : [Preset]→ [DICOM Service] → [Work List].
2. Select the device name. The device to be selected is from the preset DICOM server (for details, see "10.1.3DICOM Server Preset"). Enter AE Title and port as required.
 - Click "Add" to add the service to the service list.
 - Select a service in the service list, modify the value in the parameter interface, and click "Update" to update the corresponding parameter in the service list. Click "Cancel" to cancel the change;
 - Select a service in the service list and click "Delete", the service will be deleted.
 - Select a service in the service list and click "Set Default Server". Then the server is the default server of the service.
3. Select a service in the service list and click "Verify" to verify whether the connection is normal.
4. Click "Apply" to save the Settings.

Preset

System Preset

Image Preset

Exam Preset

System Upgrade

DICOM Local

DICOM Server

DICOM Service

Exit

Storage Service
Work List
MPPS

Device

AE Title

Scheduled Station AE Title

Service Name

Port 104

Add

Cancel

Update

No.	Device	Service Name	AE Title	Port	Default

Delete
Default
Verify
Verify Undo!

Name	Explanation
Device name	After the service is set on the DICOM Server Preset page, the device name will be displayed in the drop-down list and the configured storage server will be selected.
DICOM service name	The default value is server-storage, which can be changed.
AE Title	Application entity name. The name of the application entity must be consistent with that of the storage server.
Port	Communication port, DICOM Common port 104 by default.
AE Title	Set AE Title for the scheduled device.
Add	Add the DICOM service to the service list.
Cancel	Cancel the modified data Settings.
Update	Select the item in the service list and modify the value in the parameter interface. Click "Update" to update the parameter in the service list.
Delete	Deletes a service from the service list.
Default Server	Select an item from the server list and click "Set Default Server" to set the default server.
Verify	Verify the normal connection of two DICOM application entities at the application layer.
Apply	Save the Settings.

9.2 DICOM validation

To verify the connection (optional operation), select the server item in the list in the page of "Storage Service", "Print Service", "Work List", "MPPS" or "Storage Trust" (for details, please refer to "10.1.4 DICOM Service Preset") and click "Verify" to check whether the connection between the two DICOM application entities is normal.

- If the verification succeeds, the connection is normal is displayed in the status bar.
- If no verification response is received within the response time, the system prompts "Connection failed".

Not all SCPS support authentication. Please verify that the SCP supports authentication. If not, authentication fails.

9.3 DICOM Application

9.3.1 DICOM image storage

The DICOM storage function is used to send images to one or more DICOM storage servers for remote storage.

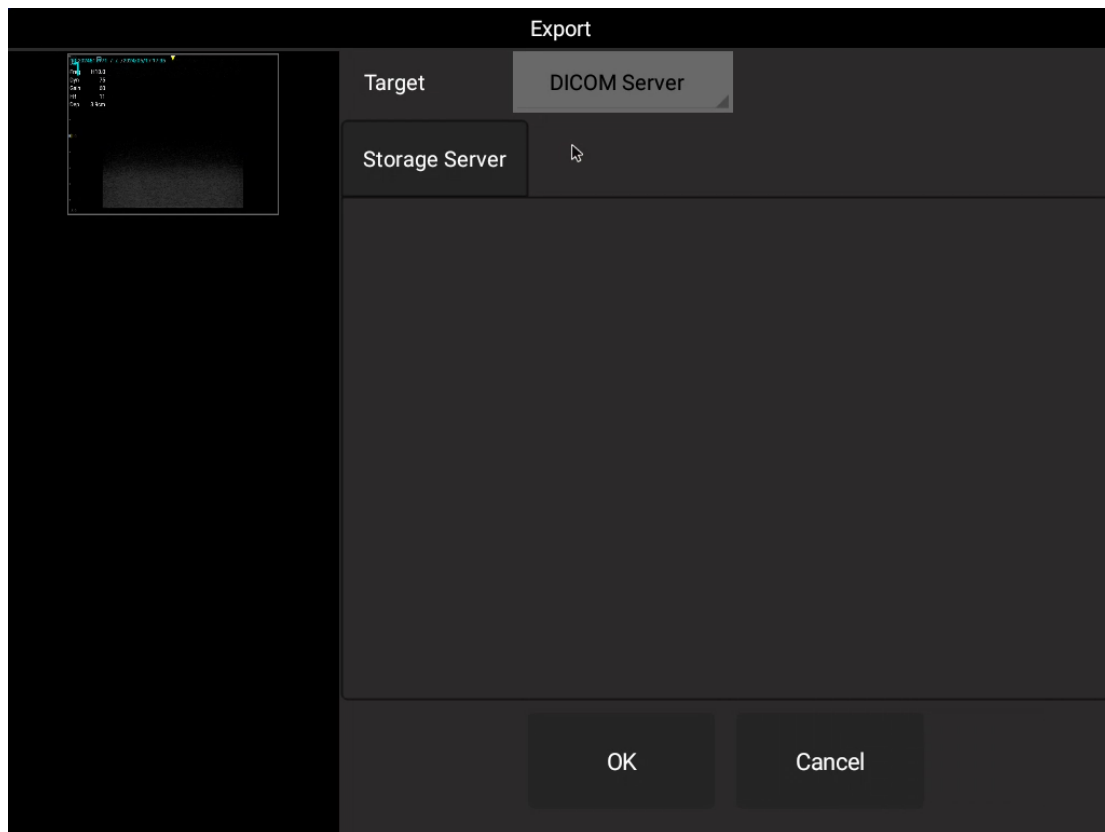
Send stored images in browse/Check main screen:

1. Select the image file:

Click [Patient List] key to open the "Patient List" interface, select an examination record in the patient list, click [Review] key to open the "Browse" interface, select one or more images.

Or in the main screen, select one or more image thumbnails in the thumbnail bar.

2. Click the "Export" button to open the "Export" dialog box as shown below.



3. Select DICOM for Destination, and select the server to store in the Storage Server column.
4. Click "OK"

9.3.2 Work list service

When the DICOM Worklist server is connected, the query conditions can be set to query the ultrasound examination list from the Worklist server, and the examination can be selected from the query results and the patient information can be directly imported.

■ Query patient information through the worklist server

Press [New Patient] or click [Functions] [Patient Information] to enter the "Patient Information" interface. → Click "Job List" to enter the "Job List" interface.

Worklist

PatientName

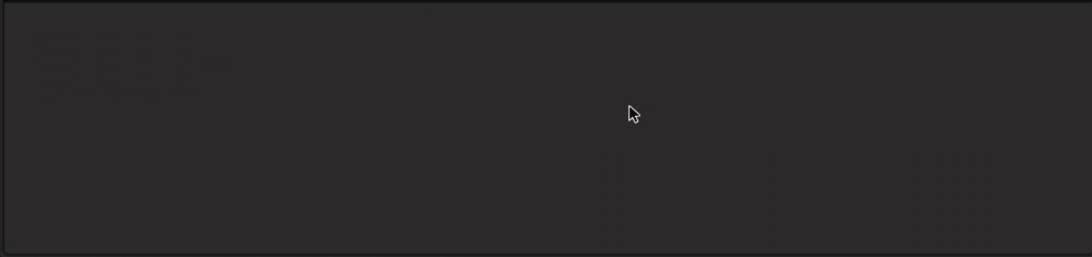
Exam Date

Patient Id

–

Worklist Service

0 records found.

Patient Id	PatientName	Study Description	Exam Date	Gender	Birth Date
					

- Query patient information:
 - 1) Set the patient filtering criteria: patient ID, patient name, serial number, keyword, work list server, or check
The date. The check date item defaults to the current system date.
 - 2) Click on [Query]. Eligible patient records will be displayed in a list of patient information at the bottom of the screen.
 - 3) For the list of patients searched, you can enter the search criteria in this range for a second search.
The list is filtered in real time with input.
- Select the desired patient data from the list:

Click "Start examination", the system will import the patient information into the system, and then start the examination;

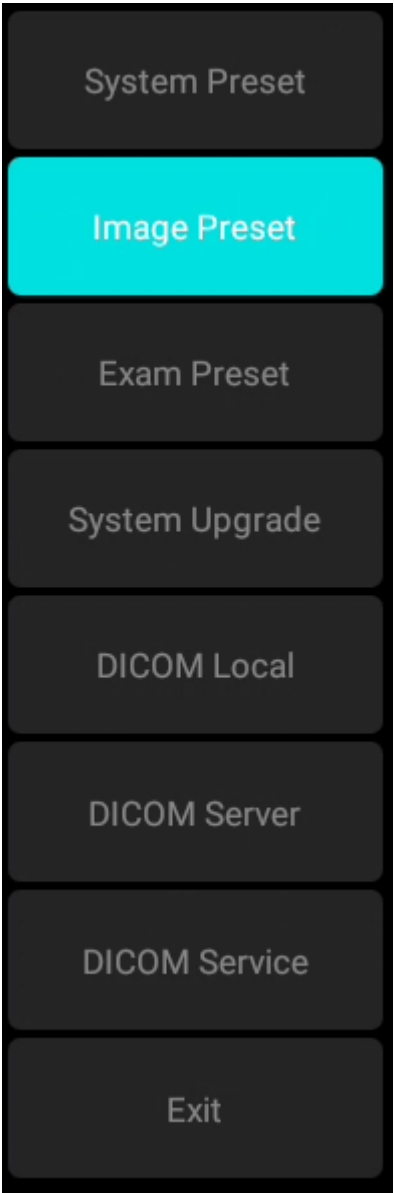
Click "Select" to read the selected patient's information to the patient information dialog box, and then edit the patient's information. Click "OK" to start a new check.
- Display patient details:
 - 1) Select a patient data.
 - 2) Click "Show Details" to view patient details and attributes.
- Use the work list server to query automatically
 1. Click the preset [DICOM Service] [Work List] to open the setting page. →
 2. Select the server in the service list and click "Set Default Server" to set the default server.
 3. Click "Apply" and exit.
 4. Click the [Functions] [Information] key to enter the patient information interface. →
 5. Click "Job List" to enter the "Job List" interface.

6. The system automatically sends the query request to the default server, and the patient data that meets the current query conditions will be displayed in the list.

10 Settings

Preset Is used to set the operating environment, status and configuration parameters of each check type of the device when it is started up.

Click on the lower right corner of the home screen  icon to enter the preset menu.



Name	Explanation
System preset	Preset hospital information, comprehensive preset, measurement parameters, obstetrics, puncture.
Preset	Preset default transducer and check type.
Image parameter	Default parameters for each mode are preset.
DICOM local	Preset native DICOM service properties

Name	Explanation
DICOM server	Preset the name and IP address of the server, add and delete the DICOM server.
DICOM service	Preset the properties of DICOM services.
System upgrade	View system information and precautions, upgrade the system, and restore factory Settings.
exit	Exit the Preferences page.

■ Exit Preset:

Click the [Exit] item on the preset menu, or press the exit button, the system exits the preset mode and runs according to the modified and saved parameters.

After changing the system language, restart the system to make the language change take effect when exiting the preset system.

■ Basic operation:

- Setting methods for several common setting types in the preset:

Manual input: Move the cursor to the box next to an option and enter parameters through the keyboard.

Single box: Click the single box to select. Only one box can and must be selected.

Drop-down list: Click the arrow of the drop-down list to open the drop-down list and select items in it.

- Several common buttons in presets

[Application]: Click "Apply" button to save the setting value of the current page.

[Cancel]: Click the "Cancel" button to cancel the setting value of the current page and exit the current setting page.

[System upgrade]: Click the "System Upgrade" button to upgrade the system.

[Restore Factory Settings] : Click the "Restore Factory Settings" button to restore the system to the factory Settings.

10.1 System preset

10.1.1 Hospital information

On the Preset menu, choose [System Preset] → [Hospital Info]. The Hospital Info page is displayed.

Name	Explanation
Name	Enter the name of the hospital.
Address	Enter the hospital address.
Phone	Enter the hospital number.
Website	Enter the hospital website.
Department	Enter the examination department.

10.1.2 Comprehensive preset

On the Preset menu, choose System Preset [Comprehensive Preset] to enter the Comprehensive Preset page. →

Name	Explanation
Volume button	To set the volume of the key, select 0, 1, 2, or 3 from the drop-down list box. If 0 is selected, the key does not sound; if 3 is selected, the volume reaches the maximum.
Language choice	The system language can be English or Chinese. After changing the system language, restart the system.

10.1.3 Date and time

Time zone	Set the time zone. The value ranges from GMT-12:00 to GMT+13:00.
Date format	Set the date display format. The options are AS follows: YYYY/MM/DD (year/month/day), MM/DD/YYYY (month/day/year), and DD /mm/ YYYY (day/month/year).
Time format	Set the time display format. The options are 12 hours and 24 hours.
System date	Set the system date, move the cursor to the box, through the keyboard input;Or, click the calendar icon on the right and drop down to select the date.
System time	Set the system time, press the move cursor box, enter the time through the keyboard.

10.2 measurement

On the Preset menu, choose [System Preset] → [Measurement] to enter the "Measurement" page

10.3 Preset

Click on the Preset menu to enter.



Select the transducer to set: move the cursor to the interface Bar, drop down to select the desired transducer model.

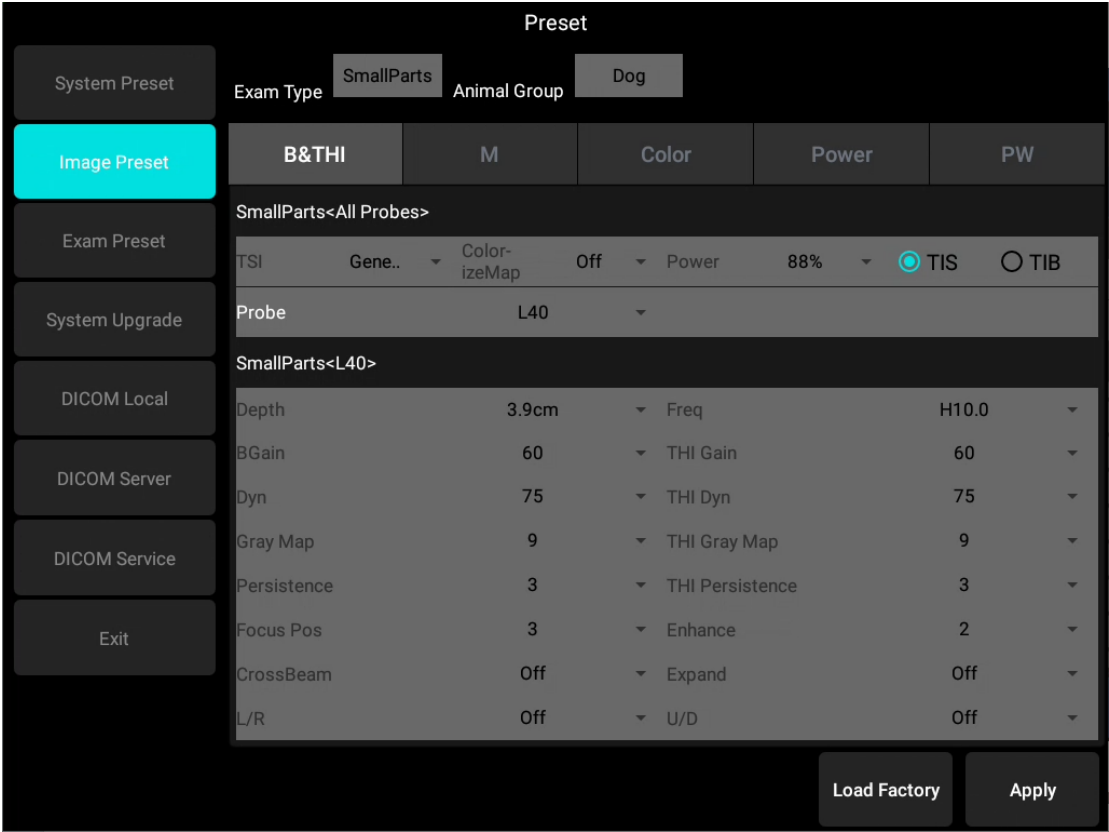
Set the default check type: move the cursor to the type to be checked, click [Set] to select the check type, click [Set to Default], and click [Apply].

10.4 Image parameter presetting

Click the [Image parameter Preset] item on the "Preset" menu to enter the image parameter preset page.

Image parameter presetting is to set the image parameters of each transducer under each inspection type. Each image mode parameter is different, but the setting method is the same. All transducers under abdominal examination type and B&THI image mode page for C60 transducer (as shown below) are introduced as examples.

Select [Image Parameter Preset]→ [B&THI] to preset B mode image adjustment parameters, as shown in the following figure.



1. Select inspection type and transducer:
Select Abdomen from the drop-down list box.
Select C60 from the Transducer drop - down list.
2. Image parameters preset:
The "Abdomen - All Transducers" area is a common parameter setting for all transducers under the abdominal inspection type. The parameters are described as follows

General parameters	
TSI	Select the default organization optimization parameters in mode B

The C60 area indicates the Settings of C60 transducer parameters in the abdominal inspection type. The following table describes the parameters

Transducer parameters	
Depth	Set the default depth
Frequency	Sets the transducer's default frequency mode
B gain	Select the default B-gain
THI gain	Select the default THI gain
Effect	Select the default B image effect
THI	Select the default THI image effect
Dynamic range	Select the default B image dynamic range

Transducer parameters	
THI dynamic range	Select the default THI image dynamic range
Frame correlation	Select the default B image frame correlation
THI frame correlation	Select the default THI image true correlation
Flip horizontal	Preset horizontal flip direction
Flip vertical	Preset vertical flip direction

3. When modifying parameters, use the up and down keys on the keyboard to select appropriate values.
4. After modifying preset data, click "Apply" to save preset data.
5. Click "OK" to save the modified preset data, and click "Cancel" not to save the modified data.

Exit image parameter preset

6. Click "Exit" to exit the image parameter preset page.
7. Click "Restore Factory Settings" to restore factory Settings.

10.5 DICOM local

Please refer to "10.1.2DICOM Local Presets" for details.

10.6 DICOM server

For details, see "10.1.3DICOM Server Presets".

10.7 DICOM service

Please refer to "10.1.4DICOM Service Provisioning" for details.

10.8 Help manual

The operation manual is divided into different chapters. Users can click the chapter they want to browse to view the operation manual, double-click the content to enlarge it, and adjust the page with the multi-functional encoder.

11 Transducers

11.1 Transducers available

L-linear array transducer;
C-convex array transducer;
MC- Micro-Convex transducer;
R-rectal transducer;
P-phased array transducer;

11.1.1 Transducer maintenance

After each use, wipe the transducer gently and thoroughly with a 3.4% saturated acetaldehyde solution using a hot, damp, soft cloth.

