

Diagnostic Ultrasound System ARIETTA 750

Instruction Manual Basic Operations

Requests to operators and maintenance managers:

- Read the document "Instructions for Use" before using the Diagnostic Ultrasound System.
- After reading "Instructions for Use", store it near the system so that it is accessible at all times.

FUJIFILM Healthcare Corporation

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Introduction

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Introduction

Thank you for purchasing the ARIETTA 750 Diagnostic Ultrasound System by FUJIFILM Healthcare Corporation.

This document is the instruction manual for the ARIETTA 750 Diagnostic Ultrasound System.

This instrument complies with Medical Device Regulation (EU) 2017/745 and Directive 2011/65/EU and (EU) 2015/863 relating to RoHS.

Name and classification of medical equipment

Product name

Diagnostic Ultrasound System ARIETTA 750

Revision history

Revision no.: 7

Revision date: 2022-09-07

Symbols used in this manual

This manual uses the following terms to describe the safety precautions that must be observed to prevent danger or injury to operators and patients. The severity of risks and injuries that might occur if safety precautions are not observed are classified into three levels: DANGER, WARNING, and CAUTION. In addition, NOTICE indicates precautions that operators must observe.



DANGER

Indicates an imminently hazardous situation that, if not avoided, might result in death or serious injury. This symbol also indicates an immediate danger that might result in the total destruction of devices, or in fire.



WARNING

Indicates a potentially hazardous situation that, if not avoided, might result in death or serious injury. This symbol also indicates a potential (latent) danger that might result in the total destruction of devices, or in fire.



CAUTION

Indicates a situation that, if not avoided, might result in light or moderate injury. This symbol also indicates a situation that might result in damage to a device or to part of a device, or in the loss of computer data.

NOTICE

Indicates a precaution that we strongly urge operators to observe to prevent damage to or deterioration of devices during operation, as well as to ensure that the devices are used efficiently. Alternatively, this symbol indicates a recommended procedure, condition, or action that requires careful attention.

Safety precautions are categorized as follows and indicated by the following symbols.



Indicates prohibited conditions or actions. Safety precautions accompanied by this symbol describe conditions or actions that are prohibited.



Indicates required actions that the user must perform.

Non-alphanumeric characters used in this manual

Please note that actual screen displays (including icons and design) might differ from the Diagnostic Ultrasound System screens reproduced in this manual.

Some of the messages described in this manual might not be displayed by the Diagnostic Ultrasound System, depending on its configuration (including options).

For details on functions not described in this manual, see the separate instruction manuals.

In this manual, the term ARIETTA 750 also includes ARIETTA 750LE, ARIETTA 750SE, and ARIETTA 750VE.

The following symbols are used in this manual.

Character	Explanation
α	Alpha
γ	Gamma
π	Pi

About Diagnostic Ultrasound System ARIETTA 750

This system is intended for use by doctors and other qualified persons for the purpose of performing tomography and hemodynamic diagnosis of blood flow in the human body.

Note, however, that this system cannot be used to perform ophthalmologic ultrasound examination. The acoustic output power of the system exceeds the upper ophthalmologic limit stipulated in the U.S. FDA standards.

1. Precautions concerning the use and management of the system
 - Only doctors and other qualified persons are allowed to operate the system for diagnostic purposes.
 - Scan for the minimum length of time necessary for making a diagnosis, and at the lowest suitable output.
 - Do not disassemble, repair, or modify the system or its optional equipment without our permission. System repairs must be carried out by our certified personnel. Please notify us when repairs are needed.

NOTE: Disassembly refers to the use of tools to remove the casing or other parts.
NOTE: Modification means the attachment, to this system, of parts or devices other than those specified by our company. Replacement of a power cable is considered a modification.

- Installation of the system and any optional equipment (the mounting and connecting of the system by using tools) is to be performed by our certified partners. Please notify us when the system or any optional equipment needs to be installed.
- Transportation of the system (movement of the product by using a vehicle such as a car or ship) is to be carried out by our certified partners. Please notify us if the system needs to be transported.
- Clean and inspect the system periodically. For details, see "Instructions for Use".
- If any abnormality occurs during the use of the system, remove the probe from the patient immediately, and stop using the system. If the patient exhibits unusual or abnormal symptoms, immediately provide the appropriate medical treatment. Perform the required measures for the system as described in "Instructions for Use". If an abnormality occurs that is not described in "Instructions for Use", please contact our office.

2. Precautions on system installation

This system is medical electrical equipment intended for use in hospitals, research institutions, and similar facilities. Install the system as described below.

- Set up the system according to the instructions given in "Setup Before Use" in "Instructions for Use".
- Install the system in an environment that meets the conditions described in "Ambient conditions" in "Instructions for Use".
- Install the system in an environment where electromagnetic compatibility can be maintained in accordance with "Precautions for maintaining electromagnetic compatibility" and "Guidelines for electromagnetic compatibility" in "Instructions for Use".

Electromagnetic compatibility (EMC) means that the system can maintain basic performance and safety within the specified electromagnetic environment, without causing electromagnetic interference that cannot be tolerated by other devices in that environment.

3. External dimensions and weight of the system

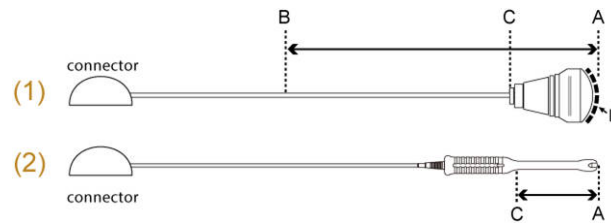
External dimensions	Width: 550 mm $\pm 10\%$ Depth: 900 mm $\pm 10\%$ Height: 1220 mm $\pm 10\%$ to 1695 mm $\pm 10\%$
Weight	136 kg $\pm 10\%$ (main unit only), 162 kg $\pm 10\%$ (with all options included)

Classification of the ARIETTA 750 Diagnostic Ultrasound System

- Protection against electrical shock: Class I and ME equipment
- Protection against electrical shock (applied parts): Type BF applied parts

- Probes and scanner

Refer to the following diagrams (for the probe or scanner) and the following table for details about applied parts and parts that are handled as applied parts.



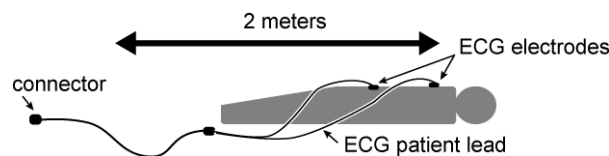
- (1) Example of probes for surface or intraoperative use.
- (2) Example of body cavity probes.

Probe Application	Applied part (direct patient contact)	Parts handled as applied parts	Length between B and C
Body surface	Ultrasonic irradiation area (D)	Between A and B	100 cm
Intra-operative	Ultrasonic irradiation area (D)	Between A and B	20 cm
Endocavity	Between A and C	Between A and C	-

- ECG, PCG, Pulse

Parts within a 2 m range from a physiological signal sensor are regarded as applied parts. (See the figure below.)

Example: ECG



- Protection against electrical shock (defibrillation-proof applied parts): This system is not suitable for use with defibrillation-proof applied parts.
- Protection against penetration by water or particulate substances
 - Probe applied part: IPX7 (rated for brief immersion in water)
 - Foot switch
 - MP-2819*: IPX7 (rated for brief immersion in water)
 - MP-2345B: IPX8 (rated for continuous immersion in water)
 - Other Details: IPX0 (ordinary equipment)
- Level of safety for use in air and flammable anesthetic gas, or in oxygen/nitrous oxide and flammable anesthetic gas.
 - This system is not suitable for use in a mixture of air and flammable anesthetic gas, or in a mixture of oxygen or nitrous oxide and flammable anesthetic gas.
- Operation mode: Continuous operation

Recycling or Disposal



CAUTION



Recycle or dispose of this equipment properly according to your organizational rules and your local laws.



Waste Electrical and Electronic Equipment (WEEE) Directive

Do not dispose medical devices together with household waste.

In observance of the European Directive on waste electrical and electronic equipment (WEEE) and its implementation in accordance with national law, medical devices that have reached the end of their product life must be collected separately and returned to an environmentally compatible recycling facility.

Please contact your local distributor of our company for information about qualified recycling facility.

The equipment contains a primary battery (lithium battery). You should recycle or dispose of this equipment properly according to your organizational rules and your local laws. For more detailed information about recycling of this equipment, please contact one of our offices as listed on the back cover, or your household waste disposal service.

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Other company names, product names and system names mentioned in the instruction manual of this instrument may be the trademarks or registered trademarks of their respective organizations. This document omits symbols such as TM and (R).

Precautions concerning the software installed on the system

The following actions are prohibited with respect to the software installed on this system:

1. Reselling, assigning, or transferring the software itself
2. Reverse engineering, reverse compiling, or reverse assembling
3. Modification, alteration or translation
4. Creating copies or duplicates
5. Leasing to third parties



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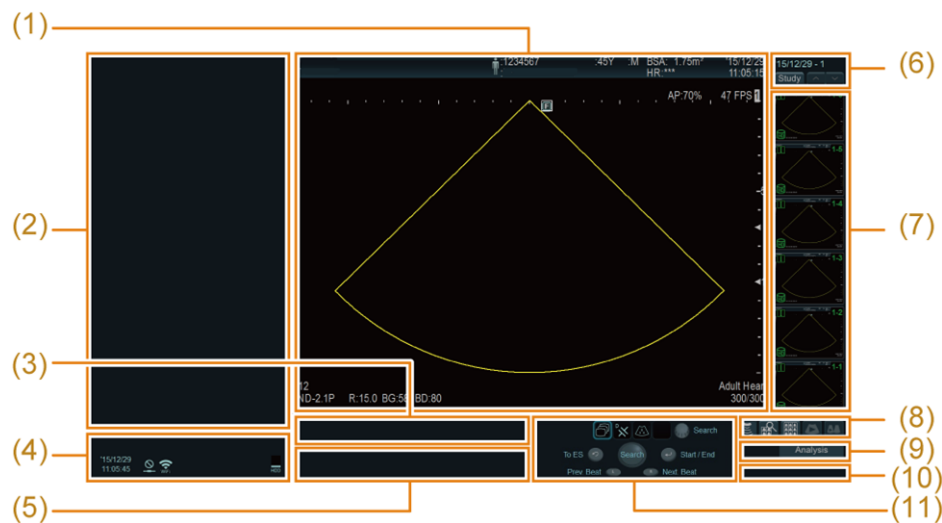
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Basic controls

- 1.1 Screen display
- 1.2 Operation panel
- 1.3 Logging in and logging out
- 1.4 Switching probes and applications
- 1.5 Adjusting the ultrasound output power
- 1.6 Entering comments
- 1.7 Displaying body marks

1.1 Screen display

The scanning screen is displayed as follows.



Layout of the scanning screen

- (1) Ultrasonic image
Displays ultrasonic images. Displays patient information, image information and other content.
- (2) Assist Information
Displays the stress echo protocol menu and other content.
- (3) Seek bar
Displays the cine memory time bar, the moving image acquisition progress bar, or the real time counter (when displaying a saved image in full screen mode).
- (4) System information
Displays system information.
- (5) Messages
An assist message is displayed.
- (6) Menu for switching the thumbnail display
Displays a menu that allows you to switch between the thumbnail area, the Tile view, and the search screen.
- (7) Thumbnails
Displays thumbnails of stored images of patients during examination.
- (8) Screen transition menu
Touch to go between screens.
- (9) Analysis
Displays the analysis menu.
- (10) Playback operation menu
Displays image playback menus in the full screen and analysis screen.
- (11) Trackball function information
Displays the state of the trackball and surrounding keys.

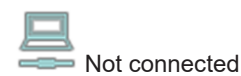
(4) System information



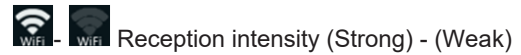
A: Current date and time

B: Various types of status and network connection status

Network connection status (wired)



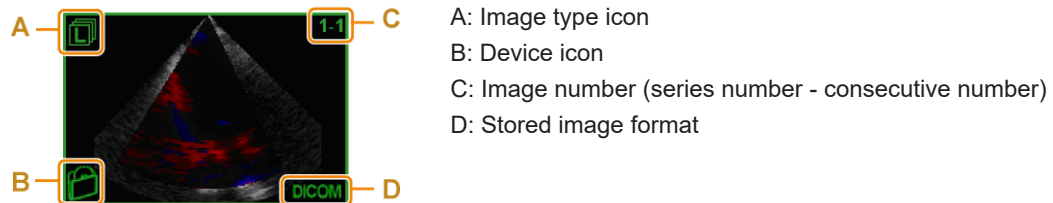
Network connection status (wireless)



C: Connection/insertion status of the storage medium, and proportion used

(7) Thumbnail

The following information will be displayed in the four corners of the thumbnail.



(11) Trackball function information

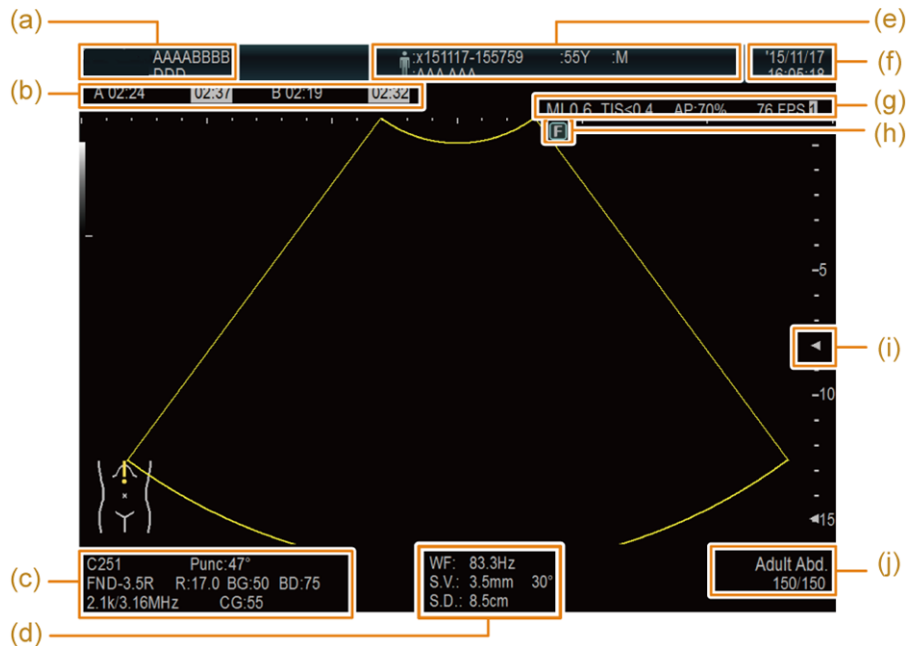


- (a) Trackball functional state (active state shown inside the frame)
- (b) [UNDO] key function
- (c) [L] key function
- (d) Trackball function
- (e) [Pointer] rotary encoder function
- (f) [Enter] key function

(g) [R] key function

Function by color		Status
Gray	Start	Inactive status
Blue	Prev. Beat	Standby status
Orange	ES	Active status

1.1.1 Information displayed on the ultrasound Image



- (a) Top row: Hospital name
Bottom row: Examiner name
- (b) Counter
- (c) Top row: Probe name, puncture angle
Middle row: Frequency (B, M), display depth, B gain value, dynamic range (B, M)
Bottom row: PRF/Reference frequency (color Doppler), color Doppler gain
- (d) Top row: PW waveform and CW waveform cutoff frequency (displayed in B/D mode)*1
Middle row: Width of the sample volume (when PW is used), angle correction value
Bottom row: Depth of the sample volume (when PW is used)
- (e) Patient data
- (f) Current date and time: When frozen, the time and date when the freeze occurred is displayed.
- (g) MI value, TI value, ultrasound output power, frame rate (number of frames per second for an ultrasound image)
- (h) Orientation mark
This manual uses the following symbols with the indicated meanings: ●: Active, ○: Inactive
- (i) Focus marks

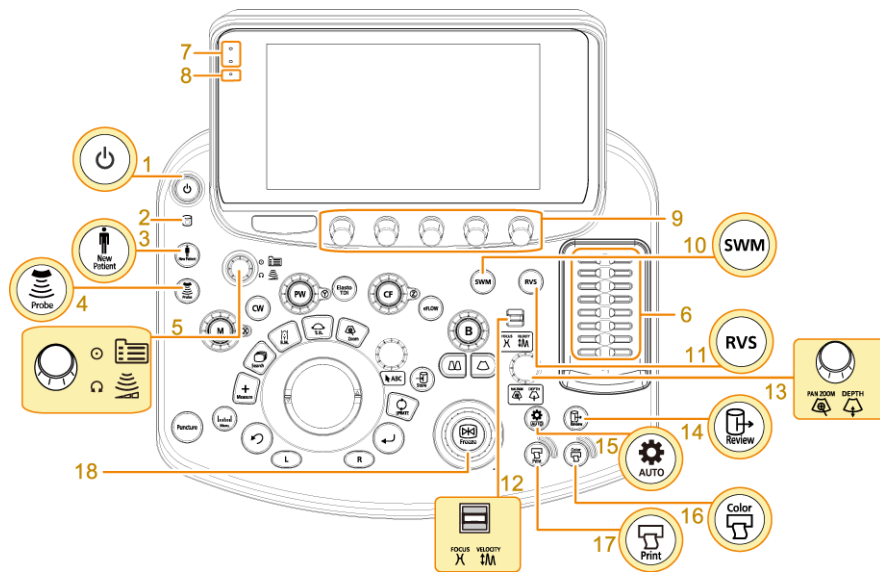
- (j) Top row: Application name
Bottom row: Display frame number/total number of frames (displayed when frozen)

*1.

The settings must be specified in the preset (the Display tab that can be displayed by clicking [Preset Setup] > [Region] > [General]).

1.2 Operation panel

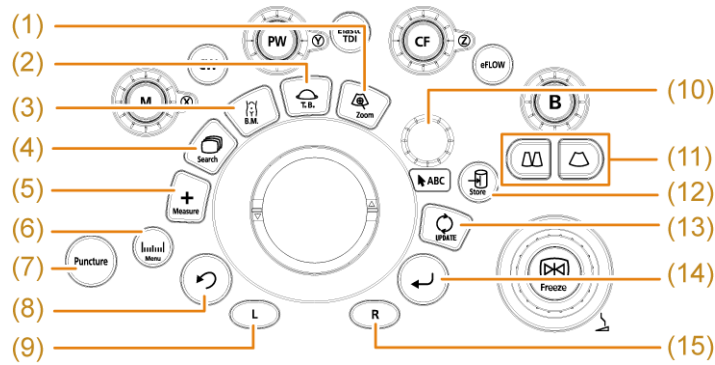
NOTE: The push button-type integrated rotary encoders have the key name on top and the rotary encoder names on the bottom. Information on how to use the rotary encoders is provided at the end of this section.



Operation panel diagram

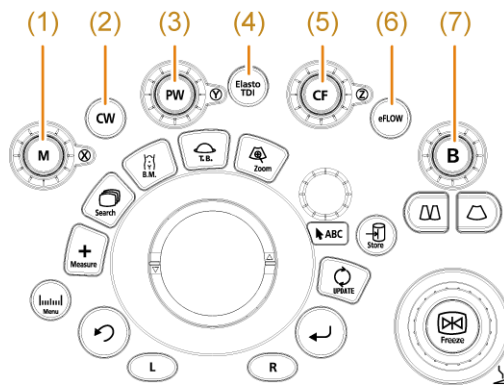
- (1) [Power] key
- (2) Disk access lamp
- (3) [New Patient] key
- (4) [Probe/Presets] key
- (5) [Menu] key
[Acoustic Power] rotary encoder
- (6) [TGC] sliders
- (7) Optical sensor
- (8) Status indication lamp
While the power is on: The lamp blinks white. When a strong force is applied to the operation panel: The lamp blinks orange.
- (9) Multi rotary encoders
- (10) [SWM] key
- (11) [RVS] key
- (12) [FOCUS/VELOCITY] paddle switch

- (13) [PAN ZOOM] key
[PAN ZOOM/DEPTH] rotary encoder
- (14) [Review] key
- (15) [Auto-optimizer] key
- (16) [Color Printer] key
- (17) [Print] key
- (18) [Freeze] key
[Freeze] rotary encoder



Operation panel (Trackball Area)

- (1) [HI Zoom] key
- (2) [Trackball Function] key
Referred to as the [T.B.F.] key in this manual.
- (3) [Body Mark] key
- (4) [Cine Search] key
- (5) [Caliper] key
- (6) [Measurement] key
- (7) [Puncture] key
- (8) [UNDO] key
- (9) [L] key
- (10) [Pointer] key
[Pointer] rotary encoder
- (11) [Single] key, [Dual] key
- (12) [Store] key
- (13) [Update] key
- (14) [Enter] key
- (15) [R] key

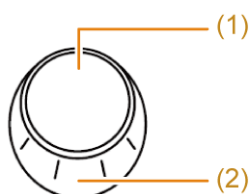


- (1) [M] key
[M] rotary encoder
- (2) [CW] key
- (3) [PW] key
[PW] rotary encoder
- (4) [Elasto/TDI] key
- (5) [CF] key
[CF] rotary encoder
- (6) [eFLOW] key
- (7) [B] key
[B] rotary encoder

Push button-type integrated rotary encoder

The key name is provided on the top, and the rotary encoder names are provided on the bottom.

Operate the rotary encoders as follows:



- (1) Keys
Press to operate.
- (2) Rotary encoder
Turn to operate.

1.2.1 Touch panel menus

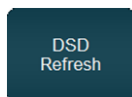


Touch panel display example

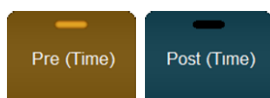
The following three kinds of menus are available on the touch panel.

- I) Direct switches
You can activate these functions by pressing the appropriate switch. Switch between pages with  at the bottom.
- II) Menu tabs
- III) Function menus
Function menus are brought up as a group under a given tab. Switch between pages by using  at the upper right.

The following types of function menus are available.



You can activate these functions by pressing the appropriate button.



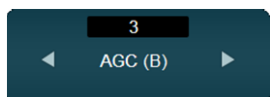
You can activate these functions by pressing the appropriate button. Selecting another function in the same group turns Off the current function.



Select a key to turn the function On or Off.

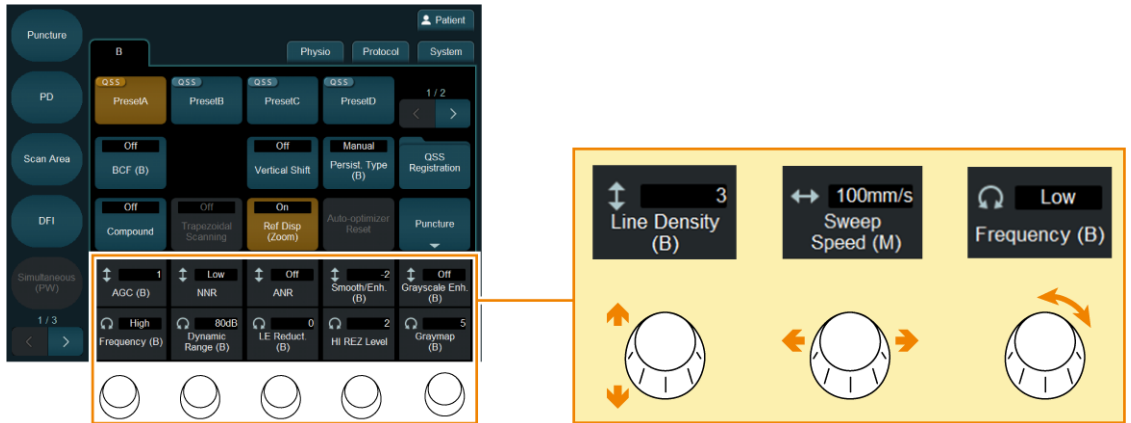


Select this to open expanded menus.

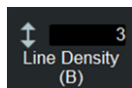


Select right or left to choose values or options.

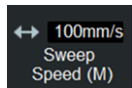
Multi rotary encoders are used to select a numerical value or option in the following function menus.



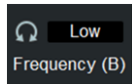
Function menus that use the multi rotary encoder below the menu



Move the multi rotary encoder up and down to select a numerical value or option.



Move the multi rotary encoder left and right to select a numerical value or option.



Turn the multi rotary encoder to select a numerical value or option.

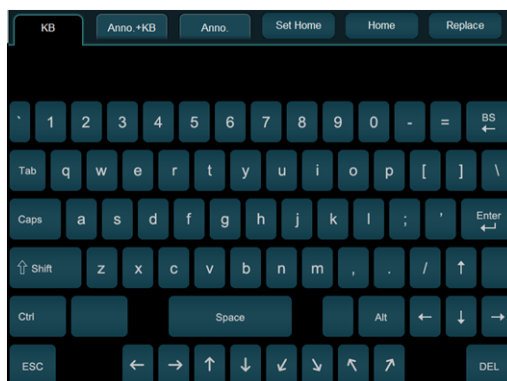
Reference information

For methods of assigning functions to each menu, see below.

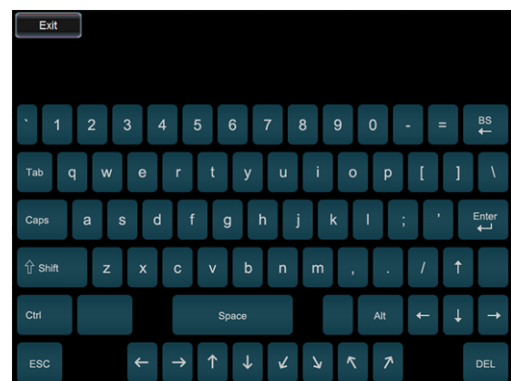
10.7.4 Assigning functions on page 343

1.2.2 Virtual keyboard

Use a virtual keyboard to enter text directly. When entering comments, you can also display a virtual keyboard in combination with the annotation menu.



When entering comments



When entering text in the ID screen, preset screen, login screen, search screen, and Report screen or other screens.

To hide the virtual keyboard when it is not needed, select [Exit] at the top of the screen.

1.3 Logging in and logging out

Logging in and out is required when the system is configured for user identification.

Prior confirmation

To log off assign [Log Off] to the function menu.

Procedure

- Log in.
 - a. Enter the user name in the User name field in the login screen.
 - b. Enter the password in the Password field in the login screen.
 - c. Select [OK].
- To log off, select [Log Off] from the function menu.
 - The login screen is displayed.
- Changing a password.
 - a. Select [Password] on the log in screen.
 - b. Enter the user name.
 - c. Enter the current password.
 - d. Enter a new password. Enter from 4 to 16 alphanumeric characters.
 - e. Enter the new password again.
 - f. Select [OK].
 - It returns to the log in screen.

Reference information

10.7.4 Assigning functions on page 343

10.11.1 Configuring user authentication on page 357

1.4 Switching probes and applications

Use the steps below to switch probes and applications to be used for an examination.

For details about how to connect probes, see the separate manual "Instructions for Use".

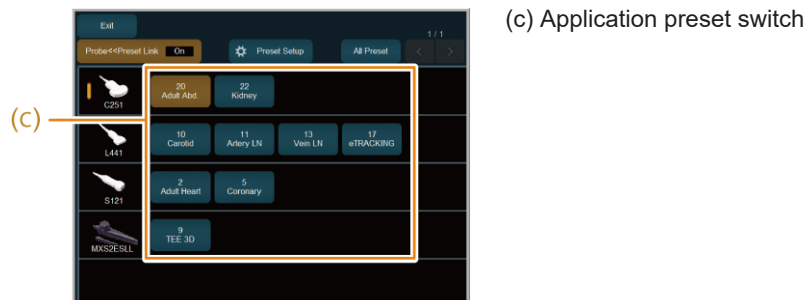
NOTE: Operation procedures vary depending on the [Probe << Preset Link] setting on the touch panel. Check the setting first.

NOTE: To switch to an application that is not displayed on the touch panel, select [All Preset]. All the registered applications are displayed.

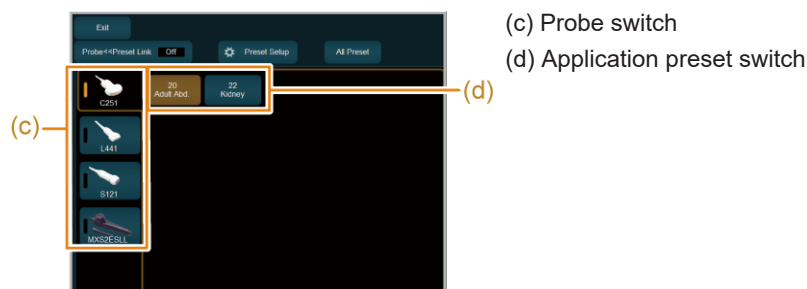
Procedure

- By selecting an application, you can switch both an application and probe at the same time.

- Press the [Probe/Preset] key.
- Set [Probe << Preset Link] to On.
- Select an application from the application preset switches (c) on the touch panel.
→ The probe will also switch at the same time.



- By selecting a probe, you can switch an application.
 - Press the [Probe/Preset] key.
 - Set [Probe << Preset Link] to Off.
 - Select a probe from the probe switches (c) on the touch panel.
 - If necessary, select an application from the application preset switches (d).



Reference information

10.3.1 Registering applications to a probe on page 282

1.5 Adjusting the ultrasound output power

Use the steps below to adjust the ultrasound output power to suit the operating mode. Examinations should be conducted according to the ALARA principle of extracting the maximum possible diagnostic information while reducing the acoustic output to the lowest reasonable level. This is the same principle as used with ionizing radiation. In general, the Diagnostic Ultrasound System is said to be non-invasive. However, since it exposes the human body to ultrasonic waves, it is not completely safe. Therefore, perform examinations using the lowest possible ultrasound output power that the examination requires.

For details about ultrasound output power, see the separate manual "Instructions for Use".

Procedure

- Turn the [Acoustic Power] rotary encoder to adjust the ultrasound output power.

→ The ultrasound output power is displayed on screen as a ratio of the actual set transmitter voltage and the maximum safe transmitter voltage under the current scanning conditions.

The acoustic power can be adjusted in 1% increments.

Lowering the ultrasound output power lowers the surface temperature at the tip of the probe.

1.5.1 Limiting the ultrasound output power for fetal observation

When the system is used for fetal observation, the ultrasound output power is limited according to our regulations in compliance with the risk management requirements provided in IEC 60601-2-37 Ed.2.1 (2015). The MI upper limit and the TI upper limit are both below 1.0.

This limitation on ultrasound output power applies to the following applications: General, Obst. 1st Trim, Obst. 2nd Trim, Obst. 3rd Trim, Obst. TV, Fetal Heart, Obst. 3D, Ob.3D 1st Trim, Ob.3D 2nd Trim, Ob.3D 3rd Trim, STIC, Obst.TV 3D, Ob. *** GP, and other applications that are edited based on the aforementioned applications.

(1) Overriding the limit on the ultrasound output power for fetal observation

Procedure

1. Select [Power Limit Override] from the System tab on the touch panel.
 - The following message is displayed: "Keep the acoustic output level as low as possible. Refer to ALARA recommendations in the Instruction Manual."
2. Select [OK].
 - The ultrasound output power value is highlighted on the screen.
The limit is suspended until the [New Patient] key is pressed. To limit the ultrasound output power again, select [Power Limit Override] again on the touch panel.

1.6 Entering comments

Use the procedures below to enter text on the screen.

1.6.1 Entering characters from the keyboard

Use the virtual keyboard (touch panel) or the alphanumeric keyboard to enter text.

Prior confirmation

Use Annotation in the preset ([Preset Setup] > [Region]) to use a user dictionary.

Procedure

1. Press the [Pointer] key.
2. Use the trackball to move the pointer to the input location.
3. Enter text.

Using the virtual keyboard

A virtual keyboard is displayed when you select the KB tab or Anno.+KB tab.



KB tab



Anno.+KB tab

Changing the size of text

Select  on the virtual keyboard to switch the text size to one of three sizes. The size is applied to the text entered from the position of the selected text cursor.

4. Press the [Enter] key. Alternatively, select [Enter] on the virtual keyboard.

Deleting all entered comments after freezing is canceled

Set Comment Auto Delete in the preset ([Preset Setup] > [Region] > [Annotation]) to [Erase].

Displaying all entered comments even after freezing is canceled

Set Comment Auto Delete in the preset ([Preset Setup] > [Region] > [Annotation]) to [Remain].

Touch panel menu items related to entering comments

Menu item	Description
Set Home	Sets the home position of the text cursor.
Home	Moves to the home position of the text cursor.
Replace	Toggles between the replace and insert modes.
Enter	Confirms the entered word, or adds a line break.
Delete	Deleting a word
Delete Last	Deletes the last word used.
Move Cursor	Switches the choice of words.

Menu item	Description
Dictionary	Switches the user dictionary.

Reference information

10.5.11 Parameters of diagnostic field settings: Annotation on page 334

1.6.2 Entering a pointer

Procedure

1. Press the [Pointer] key.
2. Use the trackball to move the pointer to the input location.

Changing the direction of the pointer

Turn the [Pointer] rotary encoder.

3. Press the [Enter] key.

1.6.3 Choosing and entering words

Select a word registered in a user or system dictionary from the Annotation menu to enter it.

Procedure

1. Press the [Pointer] key.
2. Use the trackball to move the pointer to the input location.
3. Select the Anno.+KB tab or the Anno. tab.



Anno.+KB tab



Anno. tab

4. Select the word you want to display from the Annotation menu.
→ The selected word is displayed on the image.

Reference information

10.8 Dictionary on page 348

1.6.4 Moving, deleting, replacing, and inserting words

Prior confirmation

You must first set the class of a word before selecting words for replacement.

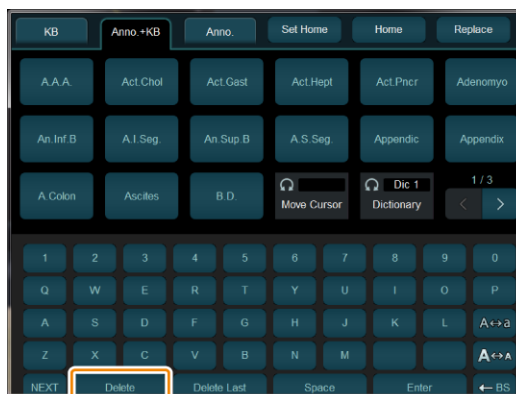
Select [Registration] in the preset ([Preset Setup] > [Dictionary]) and then set the class in the List tab of the User Dictionary screen.

Procedure

- Moving a word.
 - a. Set the pointer on the word you want to move.
 - b. Press the [UNDO] key.
 - The word is highlighted.

Abd

- c. Use the trackball to move the word. Then press the [UNDO] key.
- Deleting a word.



[Delete] on the touch panel (Anno.+KB tab)

- a. Set the pointer on the word you want to delete.
 - b. Select [DEL] or [Delete].
 - The word will be deleted.
- Deleting the last word used.
 - a. Select [Delete Last] on the touch panel.
- Deleting just one character.
 - a. Set [Replace] on the touch panel to Off.
 - b. Set the pointer on a word.
 - The text cursor is displayed.
 - c. Use the trackball to move the text cursor to the right side of the text you want to delete.
 - d. Select [BS] on the keyboard.
- Replacing a word.

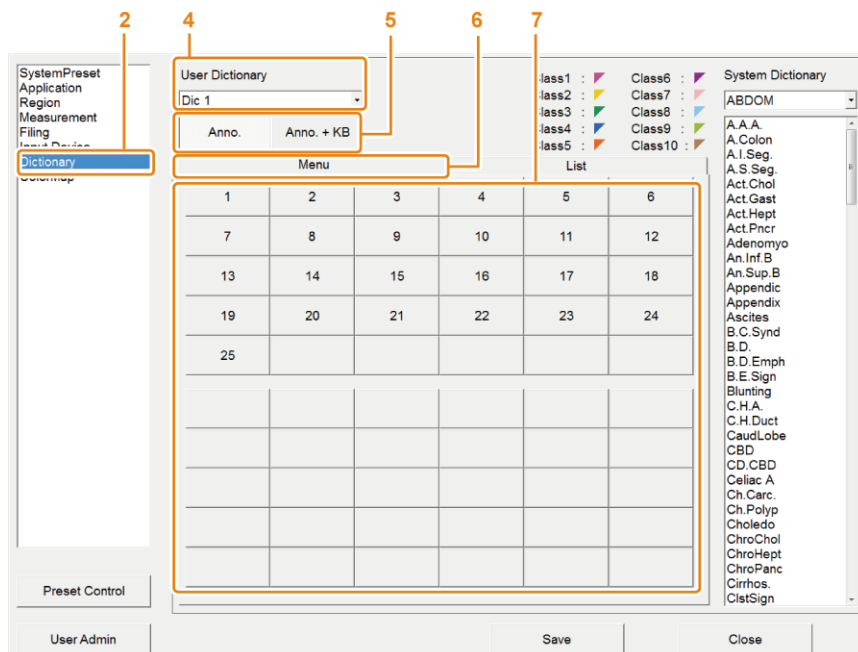
- a. Set [Replace] on the touch panel to On.
 - b. Move the pointer to the word you want to replace. Alternatively, use the [Move Cursor] multi rotary encoder to select the word you want to replace.
→ The word is highlighted.
 - c. From the touch panel, select the word to be replaced.
→ The word is replaced.
- Replacing a word with a word in the same class.
Replace a word displayed on the screen with a word on the touch panel that is in the same class.
Select [Registration] in the preset ([Preset Setup] > [Dictionary]) and then set the class in the List tab of the User Dictionary screen.
- a. Set [Replace] on the touch panel to On.
 - b. From the touch panel, select a word in the same class as the one to be replaced.
→ The word is replaced.
NOTE: The color of the class set in the presets appears on the touch panel.
NOTE: You cannot replace a word with a word of the same class if that word is from another dictionary.
NOTE: The word will not be replaced if multiple words have been entered in the same class.
- Replacing a word by using the keyboard.
- a. Set [Replace] on the touch panel to On.
 - b. Move the pointer to the word you want to replace. Alternatively, use the [Move Cursor] multi rotary encoder to select the word you want to replace.
→ The word is highlighted.
 - c. Using the keyboard, enter text.
→ The word is replaced.
- Inserting a character or word.
- a. Set [Replace] on the touch panel to Off.
 - b. Move the pointer to inside a word.
→ The word is underlined.
 - c. Using the keyboard, enter text. You can also select words on the touch panel.
→ The characters or word are inserted.

Reference information

1.6.6 Registering a word in list format to a user dictionary on page 35

1.6.5 Registering a word in menu format in a user dictionary

You can register multiple words in succession. You can also check the list displayed on the touch panel.

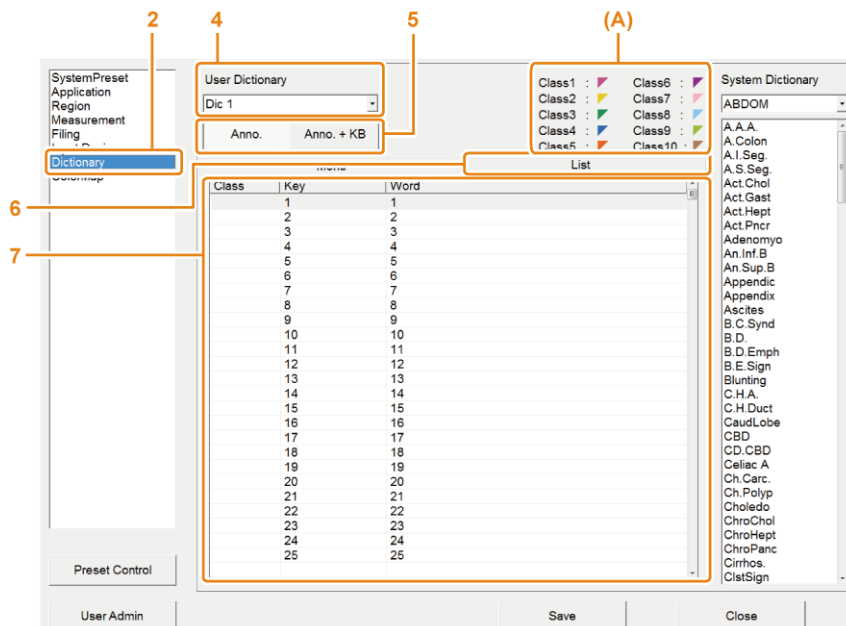


Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Dictionary].
3. Select [Registration].
4. From User Dictionary, select a user dictionary to be registered.
5. Select [Anno.] or [Anno.+KB].
6. Select the Menu tab.
7. Select the annotation button in the position you want to register.
8. Enter up to 8 characters or symbols, and then select [Enter] on the keyboard.
 - The word is registered.

1.6.6 Registering a word in list format to a user dictionary

You can register multiple words in succession. It also allows you to display registered items in detail.



(A): Legend

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Dictionary].
3. Select [Registration].
4. From User Dictionary, select a user dictionary to be registered.
5. Select [Anno.] or [Anno.+KB].
6. Select the List tab.
7. Select the position you want to register and enter characters or symbols.

Class

Set the class of the word. Use to replace a word entered on the screen with a word on the touch panel that is in the same class. The color of the specified class number is displayed at the upper left of the annotation button. The legend shows the color associated with each class number.

Key

Enter no more than 8 of the characters displayed on the touch panel. Use this function for registering abbreviated text.

Word

Enter the full spelling. Enter no more than 54 characters. When characters are entered into Word only, up to 8 characters entered in Word are displayed in Key.

8. Select [Enter] on the keyboard.

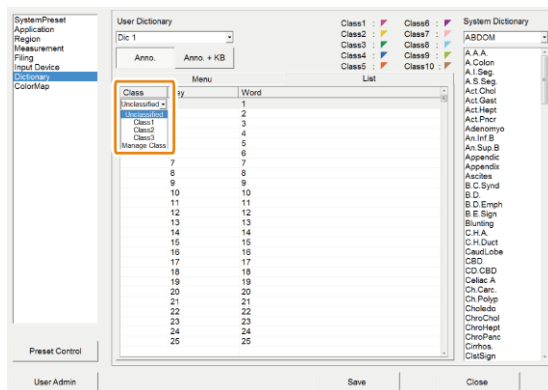
→ The word is registered.

Reference information

1.6.6(1) *Editing the word class* on page 37

(1) Editing the word class

You can set the names of classes and their usage status.



Procedure

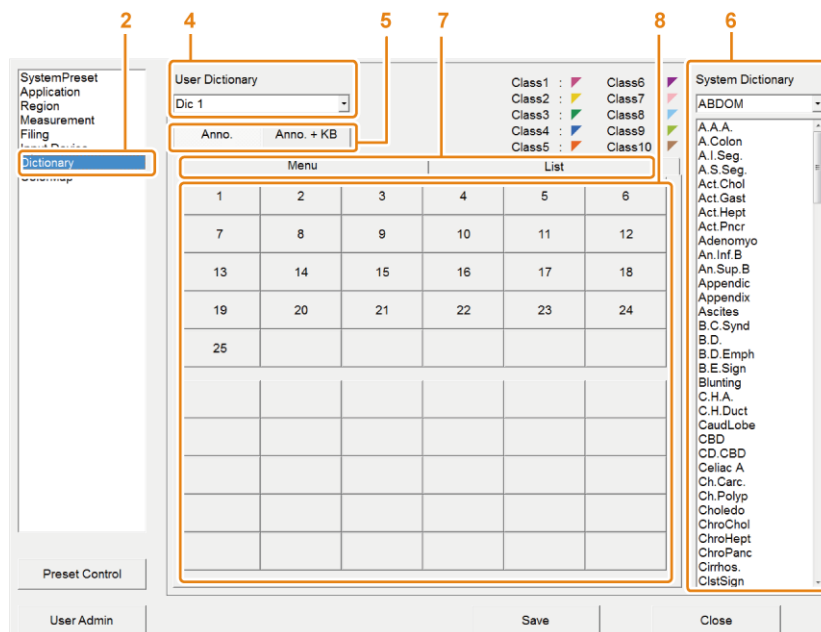
1. Select ▼ in the Class row to display the categories of classes.
2. Select [Manage Class].
→ The following dialog box opens.

Class Name	Classification
1. Class1	Enable
2. Class2	Enable
3. Class3	Enable
4. Class4	Disable
5. Class5	Disable
6. Class6	Disable
7. Class7	Disable
8. Class8	Disable
9. Class9	Disable
10. Class10	Disable

OK Cancel

3. Change the class settings.
Changing the name of a class
In the Class Name field, enter no more than 8 characters.
Changing the usage status of a class
Select the Classification button of a class.
 - Enable: displays the class in the class category list.
 - Disable: does not display the class in the class category list.
4. Select [OK] and close the dialog box.

1.6.7 Registering a word from the system dictionary into a user dictionary



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Dictionary].
3. Select [Registration].
4. From User Dictionary, select a user dictionary to be registered.
5. Select [Anno.] or [Anno.+KB].
6. Select an area from System Dictionary.
 - The list displays words.
 - NOTE: The system dictionary cannot be edited.
7. Select the Menu tab or the List tab.
8. Select the annotation button or the row of List in the position you want to register.
9. Select a character or symbol in the System Dictionary.
 - The word is registered.

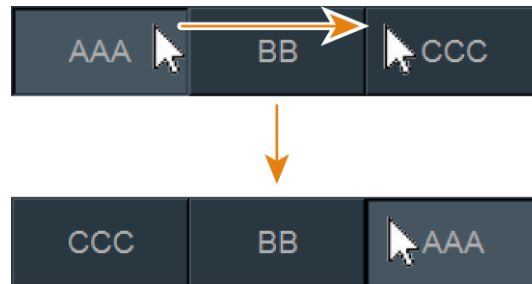
1.6.8 Editing a word into the user dictionary

Procedure

1. Deleting a word
 - Using the Menu tab
 - a. Select the annotation button you want to clear.
 - b. Select [BS] or [Delete] on the keyboard.

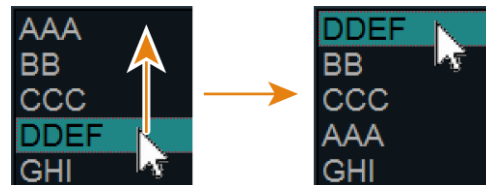
Using the List tab

- a. From Key, select the word you want to delete.
 - b. Select [BS], [Delete], or [DEL] on the keyboard.
 - c. Select [Enter] on the keyboard.
2. Changing the position of a word
- Using the Menu tab
- a. Select the word you want to move, and then press and hold the [Enter] key.
 - b. Move the pointer to the word you wish to move to and release the [Enter] key.
- The words are swapped.



Using the List tab

- a. Select the word you want to move, and then press and hold the [Enter] key.
 - b. Move the pointer to the word you wish to move to and release the [Enter] key.
- The words are swapped.



1.7 Displaying body marks

You can display a schema of scanning cross-sections in the examination window.

Procedure

- Display the body marks.
 - a. Press the [Body Mark] key.

→ The Body Mark Menu appears on the touch panel and the body marks are displayed on the screen.
- Change the body mark.
 - a. Press the [Body Mark] key, and then select a body mark from the Body Mark Menu.
 - b. Press either the [Body Mark] key, and then press the [L] key or the [R] key.

→ The selected body mark is displayed.

- Move and rotate probe mark.
 - a. Press the [Body Mark] key.
 - b. Use the trackball to move the position of the probe.
 - c. Turn the [Pointer] rotary encoder to rotate the orientation of the probe mark.
- Attach the left/right mark to the body mark.
 - a. Press the [Body Mark] key.
 - b. Select [L/R] on the touch panel.

→ If [L/R] is On, then body marks are displayed with L/R marks.
When [L/R] is turned Off, the L/R mark in the body mark is hidden.
- Rotating the fetus mark.
 - a. Press the [Body Mark] key.
 - b. Select a fetus body mark from the Body Mark Menu.
 - c. Press the [Enter] key.
 - d. Turn the [Pointer] rotary encoder to rotate the orientation of the fetus mark.

Switching probe mark and fetus mark rotation
Press the [Enter] key to switch between the probe mark and the fetus mark.
- Move the body mark display position.
 - a. Press the [Body Mark] key.
 - b. Select [Location] on the touch panel or press the [UNDO] key to set it to On.
→ A frame is displayed over the body mark.
 - c. Use the trackball to move the frame. Then press the [Enter] key.
To return it to its prior location
Pressing the [UNDO] key displays the frame in the location before the move.
 - d. Select [Location] and turn it Off.
The frame is cleared and the body mark's location is fixed.
- Hide the body marks.
 - a. Select [Body Mark Display] from the Body Mark Menu. Alternatively, press the [Enter] key.
→ The body marks displayed on the screen are hidden.

Reference information

For the body mark allocation methods, see below.

10.3.13 Application parameters: Body Mark on page 296

For settings to inherit body marks and probe marks in an active image, see below.

10.5.10 Parameters of diagnostic field settings: Body Mark on page 333

Entering patient information

- 2.1 Screens for entering patient data
- 2.2 Definition of patient data
- 2.3 Entering patient data
- 2.4 Entering patient information by using the list area
- 2.5 Performing an additional exam
- 2.6 ID screen settings

2.1 Screens for entering patient data

Enter patient data in the ID screen before you start an examination. To start examinations efficiently, on the ID screen set the following: the application to start the examination, the probe, the measurement application, and the measurement study.

You must enter the patient ID to save images, make transfers, and create measurement result reports.

The screenshot shows a software interface for entering patient data. On the left, labeled (A), is a search area with fields for Patient ID, Name, Scheduled Date (with a date range from 2019/07/19 to 2019/07/19), Accession #, Requested Procedure ID, Scheduled Perf. Physician, Modality, AE Title, and buttons for Data Management and Setup. On the right, labeled (B), is the patient data area. At the top of (B) is a tabbed interface with 'Worklist', 'Patient List', and 'Paused' tabs, and a 'Series/Image Information' button. Below the tabs is a table with columns: Patient ID, Name, Scheduled Date, Date of Birth, Gender, LMP, and Age. This table is labeled (1). Below the table is a 'Detail' button. Under the 'Detail' button is the 'Input area' labeled (2), which contains fields for Patient ID, Name, Scheduled Date (2019/07/19), Date of Birth, Age, Body Part Examined, Gender, Height (H), Weight (W), Accession #, and a 'Study ID' field with the value '1'. Below the input area is a row of buttons: CARD, OB, GYN, ABD, VAS, SMP, and URO. Below these is a 'Study Description' field. At the bottom of the input area is a row of buttons: '2 Adult Heart', 'S121', 'CARDIO', 'Cardiac Func.', and 'None'. This row is labeled (3). A 'Start' button is located at the bottom right of the input area.

The ID screen consists of (A) the search area and (B) the patient data area.

2.1.1 Patient data area

Use this screen to enter basic patient data and set the start time of an examination.

The items displayed change depending on which tab is selected.

- Worklist tab: Displays patient information obtained from the Hospital Information System (HIS).
- Patient List tab: Displays patient information registered in the system database.
- Paused tab: Displays patient information for exams that were completed that day.

Each area is described below.

(1) List area

This area displays a list of patient data read from the data registered in the database. At

the top of the ID screen, select  to show the list area, and select  to hide it.

When you select patient data from the list view, the input area displays data about the selected patient. You can edit the information in the input area.

(2) Input area

Key in patient data. Depending on the settings in the ID screen, some information is automatically entered. For details about input items, see "Basic information" in this manual. For details about ID screen settings, see "ID screen settings".

- (3) Set the following: the application to start the examination (a), the probe (b), the measurement application (c), the measurement study (d), and the protocol (e). Setting up the ID screen will enable automatic input.

When starting examination, store ID Screen of the preset ([Preset Setup] > [SystemPreset] > [Filing] > [Detail] > [Store ID Screen]) is set to On, the patient data area is automatically saved as an image when the ID screen is closed with a patient ID entered.

2.1.2 Search area

You can search the patient information registered in the system database or in the Worklist.

Reference information

2.2.1 Basic information on page 43

2.2.2 Series/image information on page 47

2.6 ID screen settings on page 56

8.1 Patient Data Management screen on page 204

2.2 Definition of patient data

Patient data consists of basic information and series/image information.

2.2.1 Basic information

- (1) Diagnostic field-specific information

- (2) Information that can be hidden

Item	Explanation
Patient ID	Enter the patient ID. NOTE: Required for saving data and creating reports.

Item	Explanation
Name	Enter the name. NOTE: The input fields are separated if Use split boxes for "Patient name" and "Referring Physician name" on the General 1 tab of the Setup screen is On.
Date of Birth	Enter the birth date. You can use the calendar to set the date if you click the button on the right.
Age	Enter the patient's age. NOTE: The patient's age is calculated automatically from the date entered in Date of Birth if Age is calculated from a Date of Birth is set to On on the Worklist tab of the Setup screen when the Worklist is created.
Gender	Select [Male], [Female], [Other], or blank. *1
H	Enter the height of the patient. *2
W	Enter the weight. *2
Scheduled Date	Enter the scheduled date of the exam. You can use the calendar to set the date if you click the button on the right.
Body Part Examined	Select the body part to be examined from the list. NOTE: The selections for [Body Part Examined] can be configured with [Body Part Examined Items] on the General 1 tab of the Setup screen.
Accession #	Enter an accession number.
Study Description	Enter the exam details.
Study ID	Enter a study ID.

*1.

Set default values in the preset in Gender of ID Setting in ([Preset Setup] > [SystemPreset] > [General] > [Common 1]).

*2.

Set units in Unit (Height) or Unit (Weight) of ID Setting in the preset ([Preset Setup] > [SystemPreset] > [General] > [Common 1]).

(1) Information that can be hidden

To hide the items in the following table, select  at the bottom of the ID screen. To display the items again, select .

Item	Explanation
Procedure ID	Enter the ID of the requested procedure.
Reported by	Enter the physician of report. Selecting the button on the right allows you to select from the input history.
Examined by	Enter the person in charge of performing the exam. Selecting the button on the right allows you to select from the input history.

Item	Explanation
Referring Phys	Enter the referring physician. Selecting the button on the right allows you to select from the input history. NOTE: The input fields are separated if Use split boxes for "Patient name" and "Referring Physician name" on the General 1 tab of the Setup screen is On.

(2) Diagnostic field-specific information

The items displayed change depending on which tab is selected.

(a) CARD tab

CARD	OB	GYN	ABD	VAS	SMP	URO
Sys / Dias BP /						
BSA DuBois m ²						

Item	Explanation
Sys / Dias BP	Enter the maximum blood pressure value on the left and the minimum blood pressure value on the right. NOTE: If the input location for the blood pressure value is incorrect, an error message appears.
BSA	Selections for the body surface area calculation formula are [DuBois], [Boyd], [Shintani], and [Key in]. *1 The body surface area is calculated and entered automatically from the body weight and height. If [Key in] is selected, enter the body surface area directly.

*1.

Set default values in the preset in BSA Equation of ID Setting in ([Preset Setup] > [SystemPreset] > [General] > [Common 1]).

(b) OB tab

CARD	OB	GYN	ABD	VAS	SMP	URO
LMP	/ /	GA=	EDC=			
BMI		GRAV		PARA		AB ECTO

Item	Explanation	
Gestational age Expected date of confinement	(1)	For the method for calculating the gestational age and expected date of confinement, select from [LMP], [BBT], [EGA], [EDC], and [GA]. *1 LMP: Enter the last day of the last menstrual period. BBT: Enter the estimated date of ovulation. EGA: Enter the past examination date and the gestational age at that time. EDC: Enter the expected date of confinement. GA: Enter the gestational age.
	(2)	Enter the date of the item selected in (1). You can use the calendar to set the date if you click the button on the right.
	(3)	The GA and EDC values calculated automatically from (1) and (2) are displayed. NOTE: The results are not displayed when EDC or GA is specified in (1).
BMI	The BMI is calculated and entered automatically based on the patient's weight and height.	
GRAV	Enter the number of pregnancies.	
PARA	Enter the number of births.	
AB	Enter the number of abortions or miscarriages.	
ECTO	Enter the number of ectopic pregnancies.	

*1.

Set default values in the preset in GA/EDC Calculation of ID Setting in ([Preset Setup] > [SystemPreset] > [General] > [Common 1]).

(c) GYN tab

Item	Explanation	
Menstrual cycle	(1)	Select the method for calculating the gestational age from [LMP] and [BBT]. *1 LMP: Enter the last day of the last menstrual period. BBT: Enter the estimated date of ovulation.
	(2)	Enter the date of the item selected in (1). You can use the calendar to set the date if you click the button on the right.
	(3)	The menstrual cycle calculated automatically from (1) or (2) is displayed.
BMI	The BMI is calculated and entered automatically based on the patient's weight and height.	
GRAV	Enter the number of pregnancies.	
PARA	Enter the number of births.	

Item	Explanation
AB	Enter the number of abortions or miscarriages.
ECTO	Enter the number of ectopic pregnancies.

*1.

Set default values in the preset in Menstrual Date of ID Setting in ([Preset Setup] > [SystemPreset] > [General] > [Common 1]).

(d) ABD tab, VAS tab, and SMP tab

CARD	OB	GYN	ABD	VAS	SMP	URO
BMI						
BSA DuBois m ²						

Item	Explanation
BMI	The BMI is calculated and entered automatically based on the patient's weight and height.
BSA	Selections for the body surface area calculation formula are [DuBois], [Boyd], [Shintani], and [Key in]. *1 The body surface area is calculated and entered automatically from the body weight and height. If [Key in] is selected, enter the body surface area directly.

*1.

Set default values in the preset in BSA Equation of ID Setting in ([Preset Setup] > [SystemPreset] > [General] > [Common 1]).

(e) URO tab

CARD	OB	GYN	ABD	VAS	SMP	URO
BMI						
Serum PSA ng/ml						

Item	Explanation
BMI	The BMI is calculated and entered automatically based on the patient's weight and height.
Serum PSA	Enter the serum PSA value. NOTE: This field is displayed only if [Male] or blank is selected for Gender.

2.2.2 Series/image information

In the input screen for patient information, select [Series/Image Information].

The screenshot shows a software interface for entering exam details. At the top, there's a title bar 'Performed Protocol Code Sequence' with 'Exit' and 'Edit' buttons. Below the title bar, there are several input fields: 'Laterality' (a dropdown menu), 'Image Type' (a dropdown menu), 'Occupation' (a text input field), 'Series Description' (a text input field), 'Patient Orientation' (a dropdown menu), 'Agent' (a text input field), 'Volume' (a text input field with 'ml' unit), 'Route' (a text input field), and 'Total Dose' (a text input field with 'ml' unit). There are also two checkboxes: 'Region Calibration' (checked) and 'Full Attributes' (unchecked).

Item	Explanation
Performed Protocol Code Sequence	Displays exam details that are going to be sent to the MPPS server or attached to the DICOM image data.
Edit	Displays a dialog box for editing the Performed Protocol Code Sequence. For details about the editing method, see "Editing a Performed Protocol Code Sequence".
Laterality	Select [Left], [Right], or [N/A] for the left/right part of the body to be examined.
Series Description	Enter a description of the image.
Image Type	Select the type of image.
Patient Orientation	Enter the anatomical orientation of the patient or select it from the list. Indicate the patient direction when viewed from the side of the image and from above using [ANTERIOR], [POSTERIOR], [HEAD], [FOOT], [LEFT], and [RIGHT] divided by backslashes and input.
Occupation	Enter the occupation of the patient.
Region Calibration	Configures the setting to include measurement information in the image information. If this is On, area information is added regardless of area information settings.
Full Attributes	Configures limits on tag information when images are recorded or transferred. If this is On, all information is added.
Agent	Enter the name of contrast agent.
Route	Enter the route of contrast agent.
Volume	Enter the applied dose of the contrast agent.
Total Dose	Enter the total administered dose of the contrast agent.

(1) Editing a Performed Protocol Code Sequence

You can edit the exam details displayed in Performed Protocol Code Sequence. The required exam items registered in the work list can be combined with the exam details list pre-registered in the system.

Procedure

1. Select [Edit] in Performed Protocol Code Sequence.
→ A dialog box is displayed.

Item		Explanation
(1)	Scheduled Protocol Code Sequence	Displays a list of required exam items that are registered on the work list. These items are also input in the Performed Protocol Code Sequence list.
(2)	Built in System	Displays the exam details list pre-registered in the system.
(3)	Performed Protocol Code Sequence list	Displays the exam details displayed in Performed Protocol Code Sequence. If required exam items are registered in the work list, they will also appear in this list.

2. Editing the exam details.

Adding a required exam item to Scheduled Protocol Code Sequence

- a. Select a required exam item from the Scheduled Protocol Code Sequence drop-down list.
- b. Select [Add].
 - It is added to Performed Protocol Code Sequence list.

Adding an examination method from Built in System

- a. Select an examination method from the drop-down list of Built in System.
- b. Select [Add].
 - It is added to Performed Protocol Code Sequence list.

Deleting exam details from Performed Protocol Code Sequence

- a. Select the exam details you wish to delete from the Performed Protocol Code Sequence list.
- b. Select [Delete].

3. Select [OK].

- It returns to the Series/Image Information screen and displays edited content in the Performed Protocol Code Sequence.

2.3 Entering patient data

Enter patient data in the ID screen before starting an examination. To enter data, use the alphanumeric keyboard or the virtual keyboard on the touch panel. You can also load patient data from a magnetic card (patient's registration card) or barcode.

Prior confirmation

- If necessary, assign [ID] to a custom switch.
- To load the data from a magnetic card (patient's registration card) or barcode, use the ID Card tab in the setup screen to select the information to be read using the reader. For details, see the section "Settings" in this chapter.

Procedure

1. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
 - This will exit the ongoing examination and display the ID screen.
 - NOTE: The ID screen is automatically displayed when the system is started up.
 - NOTE: The ID screen is displayed if you use a reader to read a magnetic card (patient's registration card) or barcode during an examination.
2. Enter patient data in the input area.
 - NOTE: Using the keyboard, move the character cursor.
 - [Tab] key or [Enter] key: Moves to next item
 - [Shift] and [Tab] keys, or [Shift] and [Enter] keys: Moves to the prior item
 - Reading a magnetic card (patient's registration card) or barcode by using a reader
 - When a reader is used to read a magnetic card or barcode, the information is entered in the input area.
3. Set the following: the application to start the examination, the probe, the measurement application, the measurement study, and the protocol.
4. Exit the ID screen.
 - Select [Start] in the ID screen.
 - On the operation panel, press the [New Patient] key, [Freeze] key, and [B] key.
 - Press the [ID] key on the alphanumeric keyboard or the custom switch.

If you used the entered patient ID to perform an exam that day:
The following message is displayed: "Select exam to be appended."
If you want to add an exam to the selected Study, select [Resume Exam].
If you want to add a new Study, select [New Exam].

Reference information

2.6.1 Settings on page 57

2.5 Performing an additional exam on page 55

2.4 Entering patient information by using the list area

You can start an exam by selecting patient information displayed in the list area. You can change the list displayed in the list area by selecting the appropriate tab.

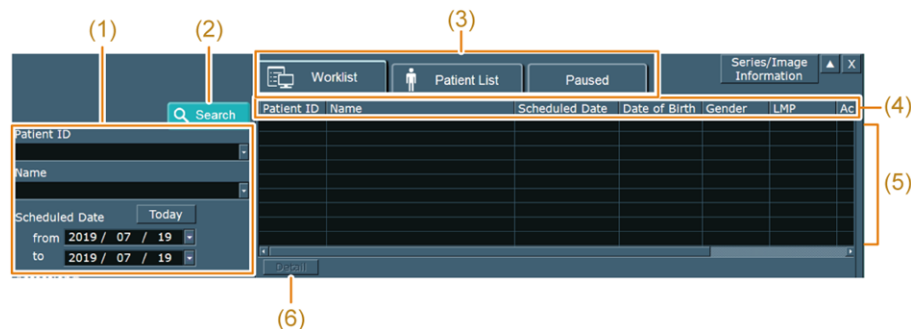
- Worklist tab: Displays patient information obtained from the Hospital Information System (HIS).
- Patient List tab: Displays patient information registered in the system database.
- Paused tab: Displays patient information for exams that were completed that day. For details, see "Performing an additional exam" in this manual.

Reference information

2.5 Performing an additional exam on page 55

2.4.1 Obtaining patient data from the HIS

Patient information obtained from the HIS work list is displayed in the list view.



- | | | |
|-----|----------------------------------|---|
| (1) | Search information input field | Enter the information for which to search. |
| (2) | [Search] | Starts a search using the specified conditions. |
| (3) | Search condition selection field | Select searching condition by a tab. |
| (4) | Patient information items | Displays items of patient information to display in the list view. Items to display can be selected by using [Worklist Column Display] on the Worklist tab of the Setup screen. |
| (5) | List view | Displays a list of patient data that matches the search conditions. |
| (6) | [Detail] | Displays detailed information on the selected patient in a dialog box. |

Prior confirmation

- Acquiring patient information from the HIS work list requires a network connection with the work list server. Set the work list server in the Server / Worklist tab of the preset ([Preset Setup] > [SystemPreset] > [DICOM]). For further details, contact the hospital's network administrator.
- When Query patient information to worklist server automatically triggered by on the Worklist tab of the Setup screen is On, the work list server can be automatically queried

when the ID screen is displayed. In Query Key Select, you can also set a search key that queries the work list server.

- When reading data from a magnetic card (the patient's registration card) or from a barcode, configure the following items in the Setup screen. For details, see the section "Settings" in this chapter.
 - In the Worklist tab, set Query patient information to worklist server automatically triggered by to On.
 - Use the ID Card tab to configure the information to be read from the reader.

Procedure

1. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
 - The ID screen is displayed.
2. Search the patient information.
 - a. Select a tab from the search condition selection field.
 - b. Enter search information in the search information input field.
 - c. Select [Search].

If the work list is not connected to the work list server or a work-list search in the work list server failed

Searches for the previous work list stored in the system.

The following message appears: "Failed to connect to the MWM server. The previous worklist stored in Local HDD is displayed." Select [OK] and start a search.

Reading a magnetic card (patient's registration card) or barcode by using a reader

When a reader is used to read data from a magnetic card or barcode, a search is performed for the patient ID that is read.

→ The search results are displayed in the list view.

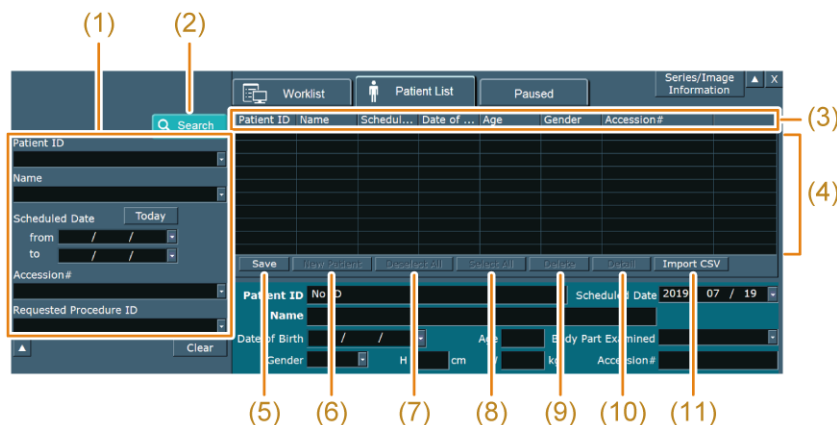
3. Select a patient from the list view.
 - Patient information is entered in the input area.
4. Move the pointer to the patient in the list view, and then press the [Enter] key twice.
 - The ID screen closes the exam starts.

Reference information

2.6.1 Settings on page 57

2.4.2 Reading patient information from the system database

Patient information registered in the system database is displayed in the list view. You can register information into the database in two ways: by entering information in the ID screen using the keyboard, or by importing a CSV file created on an external computer.



- | | | |
|------|--------------------------------|---|
| (1) | Search information input field | Enter the information for which to search. |
| (2) | [Search] | Starts a search using the specified conditions. |
| (3) | Patient information items | Displays items of patient information to display in the list view. Items to display can be selected by using [Patient List Column Display] on the Worklist tab of the Setup screen. |
| (4) | List view | Displays a list of patient data that matches the search conditions. |
| (5) | [Save] | Registers entered patient information into the system database. |
| (6) | [New Patient] | Clears information from the input area, making it possible to enter new information. |
| (7) | [Deselect All] | Deselects all patients. |
| (8) | [Select All] | Selects all patients. |
| (9) | [Delete] | Deletes the selected patients from the list view. |
| (10) | [Detail] | Displays detailed information on the selected patient in a dialog box. |
| (11) | [Import CSV] | Imports patient information from a CSV file into the system. |

(1) Registering entered patient information into the system database

Procedure

1. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
→ The ID screen is displayed.
2. Select the Patient List tab.
3. Enter patient data in the input area.
4. Select [Save].
→ The entered patient information is registered into the system database and displayed in the list view.

(2) Importing CSV files

Prior confirmation

- Configure necessary items on the Import CSV tab of the Setup screen.
- Create a CSV file and save it to a USB connected media device.

NOTE: Put the CSV file on the top level of the media device.

Procedure

1. Connect a storage medium to the system.
2. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
→ The ID screen is displayed.
3. Select the Patient List tab.
4. Select [Import CSV].
→ CSV file import processing begins.
After processing is complete, the following message appears: "CSV Import is finished. (Succeed: %d, Partly Failed %d, All Failed%d)".
Success %d: Indicates the number of patients successfully imported.
Partial failure %d: Indicates the number of patients for whom some information failed to be imported.
Failure %d: Indicates the number of patients for whom all information failed to be imported.
5. Select [OK] in the dialog box.
→ Imported patient information is added to the list view.

(3) Reading information from the system database

Procedure

1. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
→ The ID screen is displayed.
2. Select the Patient List tab.
3. Search the patient information.
 - a. Enter the information for which to search in the search information input field.
 - b. Select [Search].
→ The search results are displayed in the list view.
NOTE: Search results read from a magnetic card (patient's registration card) or barcode cannot be constrained.
4. Select a patient from the list view.
→ Patient information is entered in the input area.

5. Move the pointer to the patient in the list view, and then press the [Enter] key twice.
→ The ID screen closes the exam starts.

Reference information

2.6.1 Settings on page 57

2.5 Performing an additional exam

You can select a patient who has already been examined from the list view on the Patient List tab or the Paused tab, and use the same study ID to additionally examine the patient.



- | | | |
|-----|--------------------------------|---|
| (1) | Search information input field | Enter the information for which to search. |
| (2) | [Search] | Starts a search using the specified conditions. |
| (3) | Patient information items | Displays items of patient information to display in the list view. Items to display can be selected by using [Patient List Column Display] on the Worklist tab of the Setup screen. |
| (4) | List view | Displays a list of patient data that matches the search conditions. |
| (5) | [Detail] | Displays detailed information on the selected patient in a dialog box. |

Procedure

1. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
→ The ID screen is displayed.
2. Select the Patient List tab or the Paused tab.
3. Search the patient information.
 - a. Enter the information for which to search in the search information input field.
 - b. Select [Search].
→ The search results are displayed in the list view.
4. Select a patient from the list view.
→ Patient information is entered in the input area.

NOTE: The study ID cannot be edited.

5. Move the pointer to the patient in the list view, and then press the [Enter] key twice.
If there are one or more Study cases for that day in the Patient List tab:
A dialog box is displayed.
If you want to add an exam to the selected Study, select [Resume Exam].
If you want to add a new Study, select [New Exam].
If you want to return to the state immediately before the dialog box is displayed, select [Cancel].
If there are two or more Study cases for that day in the Paused tab:
A dialog box is displayed.
If you want to add an exam to the selected Study, select [Resume Exam].
If you want to add a new Study, select [New Exam].
If you want to return to the state immediately before the dialog box is displayed, select [Cancel].
NOTE: If there is one Study case for that day, the dialog box is not displayed. An exam is added to the selected Study of the patient.
→ The ID screen closes, and the exam starts.

2.6 ID screen settings

You can configure various settings for the ID screen.

Procedure

1. Select [Setup] at the bottom left of the ID screen.
→ It switches to the Setup screen.
2. Switch to the items you wish to configure with tabs and specify the settings.

General 1, General 2	General ID screen settings
Worklist	Settings related to querying the work list server
ID Card	Settings related to reading magnetic card and barcodes
Import CSV	Settings related to reading CSV files

Returning to the factory default settings
If you select [Initialize], the items displayed in the tab are reset to the factory default settings.
If you select [All Initialize], all items are reset to the factory default settings.
3. Select [Exit].
→ The changes are reflected on the Setup screen and it returns to the Main Setting screen.

2.6.1 Settings

(1) General 1 tab

Item	Options	Explanation
Use split boxes for "Patient name" and "Referring Physician name"	On	Splits the display of patient and referring physician name input fields into family, given, and middle names.
	Off	Patient and referring physician name input fields are not divided.
Patient Name Display of Middle	On	Displays the middle name, when splitting the display of patient and referring physician name input fields.
	Off	Does not display the middle name, when splitting the patient and referring physician name input fields.
Get Patient ID when New Patient	On	If you select [New Patient], the patient ID is automatically entered.
	Off	If you select [New Patient], the patient ID is not automatically entered.
Show confirmation message before append examination	On	If you are about to examine an already examined patient, a message appears to confirm that you want to perform an additional examination of the patient.
	Off	If you are about to examine an already examined patient, a message does not appear to confirm that you want to perform an additional examination of the patient.
When selecting new examination, clear same Accession # as previous examination	On	If you are about to examine an already examined patient but choose not to perform an additional examination of the patient, the accession number registered in the system database is cleared.
	Off	If you are about to examine an already examined patient but choose not to perform an additional examination of the patient, the accession number registered in the system database is not cleared.

Item	Options	Explanation
Fixed ID input number column	On	Prefixes patient IDs with 0(s) to correct the number of digits entered in the text box on the right. NOTE: The following patient IDs are not applied. • Patient ID obtained from HIS • Patient ID obtained from a magnetic card (patient's registration card) or barcode • Patient ID stored on the system hard disk
	Off	Does not allow revision of the number of digits in the patient ID.
Emergency ID	On	If a patient ID has not been entered, it is automatically entered at the start of the examination.
	Off	A patient ID is not assigned automatically at the start of an exam.
Preset Setting		Displays the dialog box for editing the Preset Setting selections. See "Editing settings for Preset Setting" in this manual.
Body Part Examined Setting	Preset	Automatically enters the Body Part Examined based on the application.
	(blank)	Does not enter the Body Part Examined automatically.
Study Description Setting	Preset	Automatically enters the Study Description from the application.
	Body Part Examined	Automatically enters the Study Description from the Body Part Examined.
	(blank)	Does not enter the Study Description automatically.
Body Part Examined Items		Displays the Body Part Examined dialog box for editing selections. See "Editing settings for Body Part Examined".
Image Type Items		Displays the dialog box for editing the Image Type selections. In the dialog box, select the check boxes for the items to be displayed as selections.

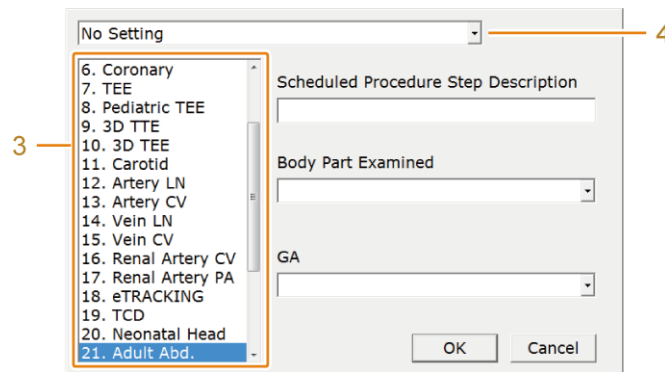
(a) Editing settings for Preset Setting

You can set conditions so that the application with which you want to start examination is automatically input on the ID screen.

Procedure

1. Select [Setup] in the ID screen.
2. Select [Preset Setting] on the General tab.

→ A dialog box is displayed.



3. Select an application.
4. Select an automatic setup method for the preset.

Options	Explanation
No Setting	Does not automatically set the application.
Scheduled Procedure Step Description	Automatically sets the application based on Scheduled Procedure Step Description.
Body Part Examined	Automatically sets the application based on Body Part Examined.
GA	Automatically sets the application from the gestational age.

To set Scheduled Procedure Step Description:

Enter the exam details.

To set Body Part Examined:

Select the body part to be examined from the list.

To set GA:

Select the gestational age from the list.

5. Select [OK].
 - The settings specified on the Setup screen are saved, and the General tab reappears.

(b) Editing settings for Body Part Examined

You can edit the selections available for Body Part Examined.

Procedure

1. Select [Body Part Examined Items].
 - A dialog box is displayed.
2. Put a check next to the body parts you wish to display in the selections available for Body Part Examined.
 - Changing the display order
Select an item and then either [Up] or [Down]. If you select [Up], the item is replaced with the one above. If you select [Down], the item is replaced with the one below.
 - Adding to the items to display

Select [[]] on the bottom row and then select [Add]. [USER**] (** indicates a serial number assigned in the order the user was added) is added. If necessary, select [Edit Name] to change the name.

Deleting a previously added item

Select the item you wish to delete and then select [Delete].

NOTE: Only added items can be deleted.

(2) General 2 tab

Item	Options	Explanation
Skip to "LMP/BBP/EGA/EDC/GA" when OB or GYN Tab is selected	On	If the diagnostic field-specific information is OB or GYN, the input cursor moves to the LMP/BBP/EGA/EDC/GA input field when you press the [Enter] or [Tab] key.
	Off	The input cursor moves to the next input item when you press the [Enter] or [Tab] key.
Search Key setting for barcode reader	Patient ID	When patient information is read from a magnetic card (patient's registration card) or by a barcode reader, the information is entered into the Patient ID field of the search area.
	Accession#	When patient information is read from a magnetic card (patient's registration card) or by a barcode reader, the information is entered into the Accession# field of the search area.
Patient List Column Display		Displays the dialog box for editing the items to display in the list view for the Patient List tab. In the dialog box, select the check boxes for the items to be displayed.
Text input cursor Pointer Position		Sets the position of the text input cursor and pointer cursor on the Worklist tab and Patient List tab when the ID screen opens.
Japanese Calendar		Displays the dialog box for registering the first letter of the Japanese traditional era name and the corresponding Western calendar years, in order to convert the Japanese calendar to the Western calendar. See "Editing Japanese Calendar settings" in this manual.
Worklist Column Display		Displays the dialog box for editing the items to display in the list view for the Worklist tab. In the dialog box, select the check boxes for the items to be displayed.

(a) Editing Japanese Calendar settings

To convert from the Japanese calendar to the Western calendar, register the first letter of the Japanese traditional era name and Western calendar year.

Procedure

1. Select [Setup] in the ID screen.
2. Select [Japanese Calendar] on the General tab.
→ A dialog box is displayed.
3. Edit the first letter of the Japanese traditional era name and Western calendar year.
To register the first letter of Japanese traditional era name and the corresponding Western calendar year:
Select [Add]. In the input dialog box, enter the first letter and the corresponding Western calendar year, and then select [OK].
NOTE: There are limitations to the values that can be entered for Starting year and First letter. For Starting year, you can enter a Western year in the range between 2019 and the year following the year in which you perform the registration operation. For First letter, you can only register an alphabetic character that has not already been registered.
NOTE: You can register up to two items.
NOTE: In Date of Birth on the ID window, use the traditional Japanese era you registered to enter a date based on the Japanese calendar, and then make sure the date is correctly converted into a Western calendar date.
To delete the added first letter of the Japanese traditional era name and the corresponding Western calendar years:
Select the item you wish to delete and then select [Delete].
NOTE: Only added items can be deleted.

Reference information

2.2.1 Basic information on page 43

(3) Worklist tab

Item	Options	Explanation
Query Key Select		Configures a search key for querying the work list server. For details about the settings, see "Setting up Query Key Select".
Use Requested Procedure/ Scheduled Procedure Step Description for Study/Series Description	On	Displays the Requested Procedure Description or Scheduled Procedure Step Description obtained from the work list in the Study Description. For details about the displayed items, see "Information obtained from work lists and content displayed on the screen".
	Off	Does not display information obtained from work lists in the Study Description.

Item	Options	Explanation
Comply to VistA.	On	Complies with VistA (Veterans Health Information Systems and Technology Architecture).
	Off	Does not comply with VistA (Veterans Health Information Systems and Technology Architecture).
Query patient information to worklist server automatically triggered by	On	Makes "Scanning barcode/card reader or pressing [New Patient]" or "Scanning barcode/card reader" selectable. NOTE: Only the Worklist tab of the ID screen is enabled.
	Off	Disables "Scanning barcode/card reader or pressing [New Patient]" and "Scanning barcode/card reader".
Scanning barcode/card reader or pressing [New Patient]	On	Automatically queries the work list server when both of the following conditions 1 and 2 are met: 1. AE Title, Station Name, IP Address, and Port# of the preset ([SystemPreset] > [DICOM] > [Server/Worklist] > [Worklist]) are set. 2. The ID screen is displayed by pressing the [New Patient] key, or a card or barcode is read on any of the following screens: - Current View - Image Compare - Worklist tab of the ID screen
Scanning barcode/card reader	On	Automatically queries the work list server when both of the following conditions 1 and 2 are met: 1. AE Title, Station Name, IP Address, and Port# of the preset ([SystemPreset] > [DICOM] > [Server/Worklist] > [Worklist]) are set. 2. A card or barcode is read on any of the following screens: - Current View - Image Compare - Worklist tab of the ID screen
Age is calculated from a Date of Birth	On	Automatically calculates the patient's age when the DOB is entered.
	Off	Does not automatically calculate the patient's age when the DOB is entered.

Item	Options	Explanation
(0008, 0090)Referring Physician's Name(Image)	(0008, 0090) Referring Physician's Name	The (0008, 0090) Referring Physician from data (image) obtained in the work list is set in (0008, 0090) Requesting Physician (Ref.).
	(0032, 1032) Requesting Physician	The (0008, 0090) Referring Physician from data (image) obtained in the work list is set in (0032, 1032) Requesting Physician (Req.).
Enable Patient ID input on Worklist	On	This setting allows input of the patient ID while the Worklist tab is displayed.
	Off	This setting prevents input of the patient ID while the Worklist tab is displayed.

(a) Setting up Query Key Select

Insert a check mark for search keys for querying the work list server.

- Scheduled Date**
 Sets the scheduled exam date as a search condition for the work list. If this is On, set the search period from the following:
 - Today: today only.
 - Today± **: before or after today. The number of days can be specified.
 - This week: this week only.
 - Date Ranges: period specified using from/to. This period does not change.
Example: When from 4/4 to 4/7 is set, the search period is always from 4/4 to 7.
 - Specified date: period specified using from/to. This period changes based on the date of the search.
Example: When from 4/4 to 4/7 is set in 4/5, the search period for 4/10 is from 4/9 to 12.
- Modality**
 Sets the modality as a search condition for the work list. If this is On, the modality is entered in the right side text box.
- AE Title**
 Sets the AE name as a search condition for the work list. If this is On, the AE name is entered in the right side text box.

(b) Information obtained from work lists and content displayed on the screen

Data obtained from the work list	Study Description on the Main Setting screen	Series Description on the Series/Image Information screen	Remarks
RPD & SPSPD	RPD	SPSPD	*1*2
SPSPD only	SPSPD	SPSPD	*2
RPD only	RPD	RPD	*1

*1.

RPD: Requested Procedure Description

*2.

SPSD: Scheduled Procedure Step Description

(4) ID Card tab

Item	Options	Explanation
Received Data		Displays all data imported from a reader.
Adjustment Result		Opens a dialog box. The dialog box displays information that was set in the ID Card tab.
Column		Sets the starting position of text strings of setting items.
Length		Sets the length of text strings of setting items. Enter 0 if a text string is not to be used.
Type		Select the data types of setting items that are shown in "Data types of setting items".
Communication		Configures communication system settings (device block setting values).
Conversion method of half-width kana	convert into romaji	Converts patient names in phonetic Japanese characters into Roman characters.
Character to remove from Patient ID	hyphen	Strips all hyphens from patient IDs.
	space	Strips all spaces from patient IDs.
Conversion method of Patient ID	standards setting	Does not add a 0 at the start of the Patient ID.
	replace top space with 0	Replaces a space at the beginning of the patient ID with a zero (0).
	add 0 to the top	Adds zeros for the number of settings at the beginning of the patient ID. Selects the number of zeros from the list on the right.
	digit number	Adds zeros to the beginning when the number of ID digits is insufficient.
Auto reflection		Configures the setting so that the patient information for the same patient ID is imported from the database and applied, when reader information is applied to the ID screen.

Data types of setting items

Settings		Options	Explanation
[Patient]	Ident	ASCII	Patient ID (not converted)
	Name	HEPBURN	Patient name converted to Roman characters via the Hepburn system.
		JAPANESE	Patient name converted to Roman characters via the Japanese system.
		PASSPORT	Patient name converted to Roman characters via the passport system.
		ASCII	Patient name not converted to Roman characters.
	Family	1, 2, 3	Position of family name within family/ given/middle names
	Given	1, 2, 3	Position of given name within family/ given/middle names
	Middle	1, 2, 3	Position of middle name within family/ given/middle names
	Gender	MF	M: Male, F: Female
		ZeroOne	0: Male, 1: Female
		OneTwo	1: Male, 2: Female
		TwoOne	2: Male, 1: Female
		OneZero	1: Male, 0: Female
	BirthYear	MTSH	Japanese Calendar
		GREGORIAN	A.D.: 4 digits
	BirthMonth	NUMERIC	Birth month (number)
	BirthDate	NUMERIC	Birthday (number)
[Study]	Accession #	ASCII	Accession number (not converted)
	ReferPhys	ASCII	Referring physician (not converted)
	Descript	NUMERIC	Study description (number)
[Series]	Descript	ASCII	Series description (number)

(5) Import CSV tab

Item	Options	Explanation
Import Folder Setting	USB	Specifies the type of media to use for importing data. NOTE: Only [USB] can be specified. This cannot be changed.
Retrieve file name (included today 's date)	On	Configures to use today's date in the file name when searching for the file to import.
	Off	Configures not to use today's date when searching.
Retrieval Name		Configures to use the specified file name when searching for the file to import.

Item	Options	Explanation
Import all consistent CSV File	On	Configures to search and import all CSV files that match the search conditions.
	Off	Configures to import only the most recently updated file of all the CSV files that match the search conditions.
Delete CSV File after importing	On	Sets to delete CSV files from the media after importing them.
	Off	Sets to not delete CSV files from the media after importing them.

Column Position

Item	Explanation
Patient ID	Specifies the column position of the patient ID in the CSV file as a number.
Name	Specifies the column position of the patient name in the CSV file as a number.
Date of Birth	Specifies the column position of the patient DOB in the CSV file as a number.
Gender	Specifies the column position of the patient gender in the CSV file as a number.
Accession #	Specifies the column position of the accession number in the CSV file as a number.
Scheduled Date	Specifies the column position of the scheduled exam date in the CSV file as a number.

Detail Setting

Item	Options	Explanation
Number of header lines		Specifies the number of rows to skip when importing a CSV file.
Attached data and suffix character to Patient ID	On	Assigns a specified suffix to the imported patient ID.
	Off	Does not assign a suffix to the imported patient ID.
Suffix character		Specifies the text of the suffix that is appended to patient IDs.
Separate First and Last name	On	Splits the patient name into the family and given name for import into the system. Uses whatever is specified with character as the delimiter for the CSV file.
	Off	Does not split the patient name into family and given name for import into the system.
character		Specifies the delimiter when dividing the patient name by family and given name for import into the system.

Item	Options	Explanation
Format (Date of Birth)	YYYYMMDD YYYY.MM.DD YYYY/MM/DD MMDDYYYY MM.DD.YYYY MM/DD/YYYY GYMMDD GYY.MM.DD	Select the format for denoting date of birth in the CSV file. YYYY: A.D. MM: Month DD: Day GYY: Japanese Calendar
Format (Gender)	1:M 2:F 0:M 1:F M:M F:F	Select the format for gender in the CSV file. M: Male F: Female
Format (Scheduled Date)	YYYYMMDD YYYY.MM.DD YYYY/MM/DD MMDDYYYY MM.DD.YYYY MM/DD/YYYY GYMMDD GYY.MM.DD	Select the format of scheduled date in the CSV file. YYYY: A.D. MM: Month DD: Day GYY: Japanese Calendar

Displaying images

- 3.1 B mode
- 3.2 M mode
- 3.3 Color Doppler mode
- 3.4 D mode
- 3.5 TDI mode
- 3.6 Adjusting images
- 3.7 Dynamic Slow-motion Display (D.S.D.)
- 3.8 Panoramic display
- 3.9 Modes that can be displayed for specific probes
- 3.10 Picture in Picture (PinP) mode
- 3.11 Displaying the puncture guide lines
- 3.12 Needle Emphasis
- 3.13 Physiological Signals
- 3.14 Cine memory

3.1 B mode

In B mode, you can display any desired cross-section of the body as a tomographic image.

3.1.1 Displaying B mode images

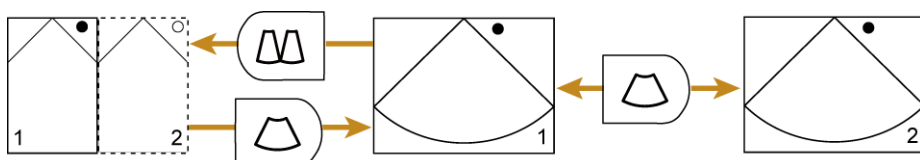
Prior confirmation

For a quad-screen view, use the presets to assign [Quad] to a direct switch or a custom switch.

Procedure

- Displaying a B mode image (single-screen view).
 - Press the [B] key.
It displays a real-time B mode image (single-screen view).
Pressing the [B] key while in the Freeze state displays the B mode image (single-screen view) in real time.
- Displaying a B mode image (dual-screen view).
 - a. Press the [Dual] key.
→ This displays the active screen in real time and the non-active screen as frozen images.
- Displaying a B mode image (quad screen).
 - a. Select [Quad] on the touch panel or in the custom switches.
→ This displays the active screen in real time and the others as frozen images.
- Switching the active screen.
 - In the dual-screen view, press the [Dual] key.
 - In the quad-screen view, select the direct switch [Quad].
- Changing to the single-screen view after an image is frozen.
 - Press the [Single] key.
→ When the display is switched from the dual-screen view or quad-screen view to the single-screen view, the displayed Cine Memory switches.

For the dual-screen view

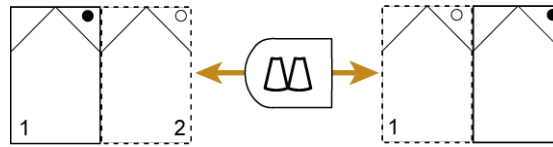


The image inside the solid lines is the active image

- Switching the active image after freezing.

For the dual-screen view

- Press the [Dual] key.



The image inside the solid lines is the active image

Reference information

10.7.4 Assigning functions on page 343

3.2 M mode

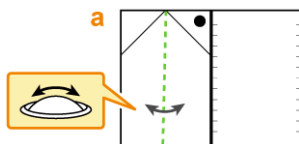
In M mode, the ultrasound beam is fixed to a straight line in B mode images, and movement of ultrasonic reflectors on this straight line are displayed on the screen along with temporal changes.

In M mode, the scale is displayed at 1 cm (0.5 cm when the display depth is 6 cm or less) in the depth direction, and 0.5 sec in the time direction. In real time, the scale is only displayed at the top and bottom edges of the image.

3.2.1 Displaying M mode images

Procedure

1. Press the [M] key.
 - B mode and M mode images are displayed simultaneously in real time. The M cursor is displayed on the B mode image.
2. Move the M cursor.
 - a. Use the trackball to move the position of the cursor.



→ The M mode image at the M cursor position is displayed.

(1) Switching the active screen

Procedure

- Press the [Update] key.
 - Each time you press the [Update] key, the active screen switches.
- Roll the trackball.

NOTE: This requires that Sweep mode Auto Active is set to [B Active by Cursor movement] or [B/Sweep Active by Cursor movement] in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).

When the setting is [B Active by Cursor movement]

The B mode image becomes active.

Press the [Update] key to activate M mode again.

When the setting is [B/Sweep Active by Cursor movement]

The B mode image becomes active.

To activate M mode again, stop moving the trackball at the position where you want to display the M mode image.

(2) Switching screens

Prior confirmation

If necessary, assign [Full M/D] to a direct or custom switch.

Procedure

- Press the [Single] key or select [Full M/D] to switch B/M mode to the single-screen view after an image is frozen.
- Press the [Dual] key or select [Full M/D] to switch M waveform (single-screen view) to B/M mode view after an image is frozen.
- Select [Full M/D] to switch between B/D mode and D waveform (single-screen view) in real time.

3.2.2 FAM (Free Angular M) mode

Displays an M mode image on any line of the B mode image.

The FAM mode M cursor is called the FAM cursor. FAM cursor settings include a method for setting up to three cursors in any desired position (PSAX OFF), and a batch setting method for setting two or three cursors with their center fixed (PSAX ON).

(1) Displaying FAM mode images

B mode images can be switched to FAM mode image display in real time or a freeze.

Prior confirmation

Assign [FAM] to a direct switch.

Procedure

- Switching to FAM mode in a real-time image
Switching from B/M mode to FAM mode
 - a. Display the B/M mode.
 - b. Select [FAM] from direct switch.
Switching from B mode to FAM mode
 - a. Display the B mode.
 - b. Select [FAM] from direct switch.

- The FAM cursor is displayed on the B mode image.
- c. Press either the [M] key or the [Update] key.
- Switching to FAM mode when frozen.
 - a. Display in B mode (single-screen view).
 - b. Press the [Freeze] key to freeze the image.
 - c. Select [FAM] from direct switch.
 - d. Press either the [M] key or the [Update] key.
 - The FAM mode image is displayed.
- Switching to FAM mode with saved video images.

NOTE: The only videos that can be displayed in FAM mode are tomographic images saved in Raw format.

 - a. Select a video image (Raw data) from either a thumbnail on the scanning screen or from the Review screen.
 - The selected images are played back as a loop.
 - b. Press the [Cine Search] key.
 - c. Roll the trackball to the right or left.
 - Loop playback stops.
 - d. Select [FAM] from direct switch.
 - e. Press either the [M] key or the [Update] key.
 - The display switches to B/FAM mode.

Reference information

10.7.4 Assigning functions on page 343

(2) Setting the FAM cursor in any desired position (PSAX OFF)

Prior confirmation

You must first set [PSAX] to Off. Use one of the following methods.

- Clear the On check box for PSAX in the Common tab of the preset ([Preset Setup] > [Application] > [Edit Data] > [M]).
- Assign [PSAX] to a direct switch, custom switch, or function menu, and turn it off.

Procedure

1. Select [FAM] from direct switch.
 - The FAM cursor is displayed on the B mode image.
2. Set the positions and orientations of FAM cursors.
 - Use the trackball to move the cursors.
 - Rotate the cursors by using the [Pointer] rotary encoder.

3. Increase the number of FAM cursors.
 - a. Press the [Enter] key.
 - b. Set the position and orientation of the FAM cursors in the same way as in step 2.
Changing the number of FAM cursors
 Use FAM Cursor Number on the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [M]).
 - c. Repeat steps a & b to set additional FAM cursors.

Clearing excess FAM cursors

Assign [Active FAM disp. off] to a direct switch, custom switch, or function menu.

- a. Press the [Enter] key to activate the target FAM cursor.
- b. Select [Active FAM disp. off].
 - The selected cursor is deleted. The remaining cursors are displayed as A and B in the order they were assigned.

Reference information

10.7.4 Assigning functions on page 343

(3) Setting the left ventricular short-axis cursor (PSAX ON)

To conveniently switch to left ventricular short-axis M mode, display three cursor lines (or two cursor lines) at the same time, and display the FAM image.

Prior confirmation

You must first set [PSAX] to On. Use one of the following methods.

- Select the On check box for [PSAX] on the Common tab of the preset ([Preset Setup] > [Application] > [Edit Data] > [M]).
- Assign [PSAX] to a direct switch, custom switch, or function menu, and turn it on.

Procedure

1. Select [FAM] from direct switch.
 - The FAM cursor is displayed on the B mode image.
2. Set the positions and orientations of FAM cursors.
Moving or rotating PSAX cursors while maintaining their shape
 - Use the trackball to move the cursors.
 - Rotate the cursors by using the [Pointer] rotary encoder.

Shifting just one cursor to another position and/or orientation

Assign and change [Center Independence] to a direct switch, custom switch, or a function menu.

- a. Set [Center Independence] to On.
 - FAM cursor A becomes the active cursor.

- b. Use the trackball to move FAM cursor A, and rotate it with the [Pointer] rotary encoder.

Activating other cursors

Press the [Enter] key.

3. If the FAM mode is not displayed, press the [M] key or [Update] key.
→ The M mode image on the FAM cursor is displayed as the FAM mode image. The FAM mode screen is divided vertically according to the number of cursors.

Reference information

10.7.4 Assigning functions on page 343

(4) Changing the display magnification of the FAM mode image

Prior confirmation

You must assign some items to presets as follows:

- Assign [Trace Fit] to a direct switch, custom switch, or function menu.
- Assign [Sweep Speed (M)] and [MAG FAM] to the function menu.

Procedure

- Changing the display magnification based on the diagnostic distance.
 - a. Set [Trace Fit] on the touch panel or custom switch to Off.
 - b. Change the display magnification under [MAG (FAM)] in the function menu.
→ The display magnification of the FAM image is changed based on the diagnostic distance (depth) of the B mode image.

Matching the FAM cursor length with the diagnostic distance of the B mode image

Set [Trace Fit] on the touch panel or custom switch to On.

- Change the sweep speed.
 - a. Adjust it by using [Sweep Speed (M)] in the function menu.

Reference information

10.7.4 Assigning functions on page 343

3.3 Color Doppler mode

The following modes are available in color Doppler mode.

- Color Flow (CF) mode
Direction and speed are displayed in a color tomographic image based on the Doppler signal obtained from blood flow.
- Power Doppler (PD) mode

Displays color on the image according to the intensity of the color Doppler signal. It is sensitive to slow blood flows.

- eFlow mode
Displays in the Power Doppler mode in high-resolution.
- Detective Flow Imaging (DFI) mode
Displays images in color according to the intensity of the signals, based on the Doppler signal obtained from blood flow. Blood flow is displayed at a high frame rate, and is little affected by body movement.
For details about compatible probes, see the separate manual "Instructions for Use".

3.3.1 Displaying color Doppler mode images

Prior confirmation

Assign [PD] and [DFI] to a direct or custom switch.

If necessary, assign [Directional] to a direct switch, custom switch, or function menu.

Procedure

1. Display the B mode image.
2. Switch to color Doppler mode.
 - Press the [CF] key.
CF mode is engaged.
 - Select [PD].
PD mode is engaged.
 - Press the [eFlow] key.
eFlow mode is engaged.
 - Select [DFI].
DFI mode is engaged.

Displaying the blood flow direction in PD mode, eFlow mode, or DFI mode

Set [Directional] on the touch panel or custom switch to On.

3. Set the flow area.
 - a. Use the trackball to move the flow area.
 - b. Press the [Enter] key.
 - c. Use the trackball to adjust the size of the flow area.
 - d. Press the [Enter] key.
 - e. Repeat steps a through d to set the flow area.

The direction of trackball operation can be configured for zooming the flow area.

Configure it with Reverse ROI Control in the preset ([System Preset] > [General] > [Common 2] > [Trackball]). In the factory default settings, the operation is set to On.

On : Rolling the trackball to the right expands the ROI in the horizontal direction, while rolling it to the left shrinks it. Rolling it upwards shrinks it vertically, while rolling it downwards expands it.

Off : Rolling the trackball to the right expands the ROI laterally, while rolling it to the left shrinks it. Rolling it upwards expands it vertically, while rolling it downwards shrinks it.

Reference information

10.7.4 Assigning functions on page 343

(1) Returning to the display of just the tomographic image

Procedure

- Press the [B] key.
→ The B mode image is displayed.

(2) Simultaneously displaying two images in dual-screen view

Prior confirmation

Assign [Dual CF] to a direct switch, custom switch, or function menu.

Procedure

- Select [Dual CF] in the color Doppler mode (single-screen view).
→ Two images are displayed simultaneously, with the B mode image is displayed on the left and the color Doppler image on the right.
Select [Dual CF] again to go back to color Doppler mode in the single-screen view.

Reference information

10.7.4 Assigning functions on page 343

(3) Simultaneously displaying a B mode image and DFI image in dual-screen view

Prior confirmation

Assign [Dual DFI] to a direct switch or custom switch.

The BW threshold for DFI images (Display Priority: BW Threshold) changes to 16, and only blood flow is displayed in DFI images.

Procedure

- Select [Dual DFI].
→ Two images are displayed simultaneously, with the B mode image displayed on the left and the DFI image on the right.
Select [Dual DFI] again to return to the B mode image in the single-screen view.
NOTE: You can change the BW threshold for DFI images by selecting [Display Priority] on the touch panel and setting the [BW Threshold].

Reference information

10.7.4 Assigning functions on page 343

(4) Displaying color pixels in an overlay display in real time

Prior confirmation

The following settings must be made in advance.

- Assign [Accumu. Imaging] to a direct switch, custom switch, or function menu.
- Assign [Accumu. Time] to the function menu.

Accumulates color pixels in real time for the time specified in Accumulation Time in the Common tab of the preset ([Preset Setup] > [Application] > [Edit Data] > [Color]), and then displays the color pixels in an overlay display.

Procedure

1. Display a color Doppler mode image.
2. Turn [Accumu. Imaging] On.
3. Set the accumulation time under [Accumu. Time].
4. To end the operation, set [Accumu. Imaging] to Off.

Reference information

10.7.4 Assigning functions on page 343

(5) Displaying color pixels in an overlay display after an image is frozen

Prior confirmation

Assign [Capture Imaging] to a direct switch, custom switch, or function menu.

Procedure

1. Display a color Doppler mode image.
2. Press the [Freeze] key to freeze the image.
3. Press the [Cine Search] key to turn it On.
When the trackball function in the freeze mode is set to [Search]
Go to step 4 without pressing the [Cine Search] key.
[Search] can be set using Trackball Priority When Frozen (Color On) or Trackball Priority When Frozen (Color Off) in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).
4. Display color pixels in an overlay display.
When performing a search
 - a. Roll the trackball to the left to display the start frame.
 - b. Turn [Capture Imaging] On.
 - c. Roll the trackball to the right.
→ Color pixels are displayed in an overlay display.
NOTE: When you rotate the trackball to the left, display of overlaid color pixels goes backward on a frame-by-frame basis.

When performing continuous playback

- a. Roll the trackball to the left to display the start frame for playback.
 - b. Press the [Enter] key.
 - c. Turn [Capture Imaging] On.
 - d. Roll the trackball to the right to display the end frame for playback.
 - e. Press the [Enter] key.
 - f. Roll the trackball up.
 - Color pixels are displayed in an overlay display. When the display wraps around from the end frame to the start frame, the overlay display is reset.
5. To end the operation, turn off [Capture Imaging] on the touch panel or unfreeze the image.

Reference information

3.14.3 Playing back cine memory images on page 131

3.14.4 Continuously playing back tomographic images on page 132

10.7.4 Assigning functions on page 343

3.4 D mode

The D modes display data on blood flow in the heart and blood vessels using the Doppler effect. What it displays is blood flow information in waveforms.

The B/D mode simultaneously displays a B mode image and a D mode image. You can observe blood flow information on a D mode image while checking the detection position of blood flow information on a B mode image.

The following 2 kinds of ultrasound beams are used to display D mode images.

- **PW Doppler**
Emits the ultrasound beam as discrete pulses to display a D mode image. This allows you to obtain blood flow information on any point on a B mode image.
- **CW Doppler**
Emits the ultrasound beam continuously to display a D mode image. You can change the ultrasonic wave transmission direction by connecting a steerable CW-compatible probe. CW Doppler can detect peak flow velocity as it receives signals at all depths.

3.4.1 Displaying the PW waveform

Use the steps below to display Pulse Doppler waveforms.

Prior confirmation

If necessary, assign the following function:

- Assign [Sample Volume] to the function menu.
- Assign [Simultaneous (PW)] to a direct switch or custom switch.

Procedure

1. Press the [PW] key.
 - When [Simultaneous (PW)] is On
Both B mode and D mode images become active.
 - When [Simultaneous (PW)] is Off
It switches to the B/PW mode and the D cursor is displayed on the B mode image.
2. Configuring the sample volume setting.
 - a. Use the trackball to adjust the sample volume to the detection position.
 - b. Adjust the size of the sample volume by using the [Sample Volume] multi rotary encoder.
3. Press the [Update] key.
 - The B mode image freezes and the PW waveform is displayed.

Reference information

10.7.4 Assigning functions on page 343

(1) Switching the active screen

When D mode is active, B mode images can be activated using the following operations.

Procedure

- Press the [Update] key.
 - Each time you press the [Update] key, it switches which side is active.
- Roll the trackball.

NOTE: This requires that Sweep mode Auto Active is set to [B Active by Cursor movement] or [B/Sweep Active by Cursor movement] in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).

When the setting is [B Active by Cursor movement]

The B mode image becomes active.

Press the [Update] key to activate D mode again.

When the setting is [B/Sweep Active by Cursor movement]

The B mode image becomes active.

To activate D mode again, display the cursor at the position where you want to display the PW waveform and stop moving the trackball.

(2) Correcting blood flow direction and the angle of the ultrasound beam

Prior confirmation

If necessary, assign the following function:

- Assign [Angle Correction] to the function menu.
- Assign [Auto Angle Correction] to a direct switch, custom switch, or function menu.

Angle correction can be adjusted in real-time and after freezing.

Procedure

- Correct the angle by using the [Angle Correction] multi rotary encoder.
- Use [Auto Angle Correction] on the touch panel or custom switch to automatically adjust the angle.

NOTE: Only operates in Color Doppler mode.

Reference information

10.7.4 Assigning functions on page 343

For information on other angle correction menus and presets, see below.

9.3.3 Function menus: D on page 231

10.3.10 Application parameters: Doppler on page 291

10.5.7 Parameters of diagnostic field settings: Doppler on page 332

(3) Switching screens

Prior confirmation

If necessary, assign [Full M/D] to a direct or custom switch.

Procedure

- Press the [Single] key or select [Full M/D] to switch from B/D mode to the single-screen view after an image is frozen.
- Press the [Dual] key or select [Full M/D] to switch D mode single-screen view to B/D mode view after an image is frozen.
- Select [Full M/D] to switch between B/D mode and D waveform (single-screen view) in real time.

3.4.2 Displaying the CW waveform

Use the steps below to display continuous Doppler waveforms.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".

Procedure

1. Press the [CW] key.
 - It switches to the B/CW mode and the D cursor is displayed on the B mode image.
2. Use the trackball to align the D cursor  with the detection position.
3. Press the [Update] key.
 - The B mode image freezes and the CW waveform is displayed.

Reference information

10.7.4 Assigning functions on page 343

3.4.1(1) Switching the active screen on page 80

3.4.1(2) Correcting blood flow direction and the angle of the ultrasound beam on page 80

3.4.1(3) Switching screens on page 81

3.4.3 Displaying Dual Gate Doppler

In this mode it sets two D cursors on the tomographic image and displays two Doppler waveforms on the Doppler mode screen.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".

Assign [Dual Gate Doppler] to a direct or custom switch.

Assign [Dual Dop. Combination], [Dual Dop. Select], [Angle Correction], and [Sample Volume] to a function menu.

Dual Gate Doppler simultaneously displays Doppler waveforms for two different Doppler sampling points. The following combinations of waveforms are displayed.

- PW/PW
- PW/TD PW
- TD PW/TD PW

Procedure

1. Display a tomographic image.

2. Select [Dual Gate Doppler].

→ Two D cursors are displayed on the tomographic image.



The cursor displayed as "1" is the D1 cursor, and the cursor displayed as "2" is the D2 cursor.

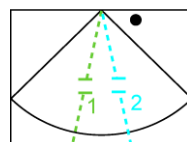
3. Select the Doppler combination in [Dual Dop. Combination].

D1 and D2 cursor displays according to the Doppler combination

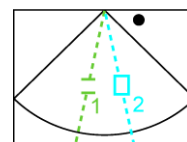
[Dual Dop. Combination]

D1 and D2 cursor displays

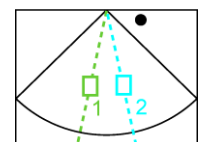
[PW/PW]



[PW/TDI]

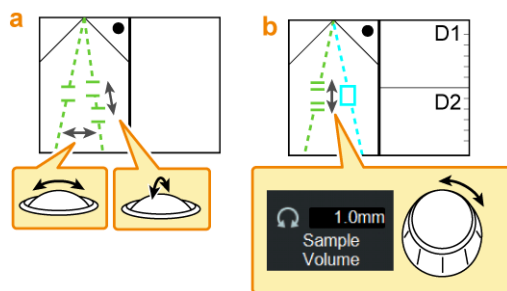


[TDI/TDI]



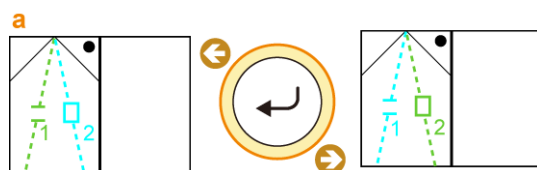
4. Set the D1 cursor.

- Use the trackball to adjust the sample volume to the detection position.
- Adjust the size of the sample volume by using the [Sample Volume] multi rotary encoder.
- Correct the angle by using the [Angle Correction] multi rotary encoder.



5. Set the D2 cursor.

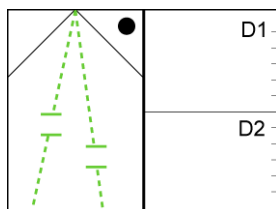
- a. Press the [Enter] key. Alternatively, select [Dual Dop. Select].
→ The D2 cursor becomes active.
- b. Configure the D2 cursor the same as in step 4.



NOTE: Toggle the D1 and D2 cursors active by using the [Enter] key or [Dual Dop. Select].

6. Display the Doppler waveform.

- a. Press the [Update] key.
→ Two Doppler waveforms are displayed at the same time.



Reference information

10.7.4 Assigning functions on page 343

3.4.5 Automatically setting the position of the sample volume (Cardiology) on page 85

3.2.1(1) Switching the active screen on page 71

3.4.4 Automatically setting the position of the sample volume (General)

The position of a sample volume can be automatically adjusted based on the position of a manually-set volume.

NOTE: Radial probes and independent probes are not supported.

NOTE: This is not supported for Dual Gate Doppler.

The following 2 kinds of timings of auto-setting are available.

- Press the [R] key.

- Select [Dop Cursor Assist].

Prior confirmation

On the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [Doppler]), set Dop Cursor Assist to [General].

If necessary, assign [Dop Cursor Assist] to the function menu.

NOTE: If the B mode images before and after the time at which auto-setting is enabled are greatly different, the sample volume is not set at an appropriate position. If the sample volume is not set in an appropriate position, reset it manually.

NOTE: After you enable auto-setting, always check the position of the sample volume, and then perform Doppler measurement.

(1) When [Simultaneous (PW)] is set to Off

Procedure

1. Configuring the sample volume setting.
 - a. Press the [PW] key.
 - It switches to the B/PW mode and the D cursor is displayed on the B mode image.
 - b. Use the trackball to adjust the sample volume to the detection position.
2. Press the [Update] key.
 - The B mode image freezes and the PW waveform is displayed.
3. Press either the [R] key or the [Update] key.
 - When the [R] key is pressed
The B mode image becomes active, and the position of the sample volume is automatically set again.
 - When the [Update] key is pressed
The B mode image becomes active.
The position of the sample volume is automatically set by pressing the [R] key or selecting [Dop Cursor Assist] on the touch panel.

Reference information

10.7.4 Assigning functions on page 343

(2) When [Simultaneous (PW)] is set to On

Procedure

1. Configuring the sample volume setting.
 - a. Press the [PW] key.
 - Both B mode and D mode images become active.
 - b. Use the trackball to adjust the sample volume to the detection position.
2. Press the [R] key or select [Dop Cursor Assist] on the touch panel.

→ The position of the sample volume is set automatically.

Reference information

10.7.4 Assigning functions on page 343

3.4.5 Automatically setting the position of the sample volume (Cardiology)

This function automatically assesses the image and sets the sample volume to an appropriate position.

NOTE: Only a sector probe is supported.

(1) Automatically setting the position of the sample volume in PW mode or TD-PW mode

Available cross-sections are apical four-chamber cross-section, apical two-chamber cross-section, and apical left ventricular long-axis cross-section.

In PW mode, the system automatically sets the position of the sample volume near the left ventricular inflow tract.

In TD-PW mode, the system automatically sets the position of the sample volumes to the septum annulus in the apical four-chamber view, the inferior wall annulus in the apical two-chamber view, and the left ventricular free lateral wall annulus in the apical left ventricular long-axis view.

The following 3 kinds of timings of auto-setting are available.

- Display of D cursor.
- Select [Dop Cursor Assist].
- Press the [Auto-optimizer] key.

Prior confirmation

On the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [Doppler]), set Dop Cursor Assist to [Cardiology].

Select [ECG Display] from the Physio tab on the touch panel to display physiological signals (ECG). Make sure the R-wave is correctly detected.

If necessary, assign [Dop Cursor Assist] to the function menu. Assign [Dop Cursor] to a direct or custom switch.

NOTE: If the R wave is not correctly detected or the target cross-section is not properly rendered, the message "Detection error: Cannot detect ECG R-wave." or "Detection error: Cannot detect dop cursor." is displayed; the position of the sample volume cannot be set automatically. If the sample volume is not set in an appropriate position, reset it manually.

Procedure

- Press the [PW] key.
 - The D cursor is displayed on the B mode image and the location of the sample volume is set automatically.
- Select [Dop Cursor] on the touch panel.

→ The D cursor is displayed on the B mode image and the location of the sample volume is set automatically.

- Select [Dop Cursor Assist] on the touch panel.
- Press the [Auto-optimizer] key.

Reference information

3.6.2 *Auto Optimizer* on page 91

3.13.1 *Displaying physiological signals* on page 125

(2) Automatically setting the position of the sample volume in the Dual Gate Doppler mode

Available cross-sections are apical four-chamber view and apical left ventricular long-axis view.

The system automatically sets the positions of the sample volumes of the D1 and D2 cursors.

The following 3 kinds of timings of auto-setting are available.

- Start Dual Gate Doppler.
- Select [Dop Cursor Assist].
- Select [Dual Dop. Combination].

Prior confirmation

On the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [Doppler]), set Dop Cursor Assist to [Cardiology].

Select [ECG Display] from the Physio tab on the touch panel to display physiological signals (ECG). Make sure the R-wave is correctly detected.

If necessary, assign [Dop Cursor Assist] to the function menu. Assign [Dop Cursor] to a direct or custom switch.

NOTE: If the R wave is not correctly detected or the target cross-section is not properly rendered, the message "Detection error: Cannot detect ECG R-wave." or "Detection error: Cannot detect dop cursor." is displayed; the position of the sample volume cannot be set automatically. If the sample volume is not set in an appropriate position, reset it manually. The Auto Optimizer cannot be used.

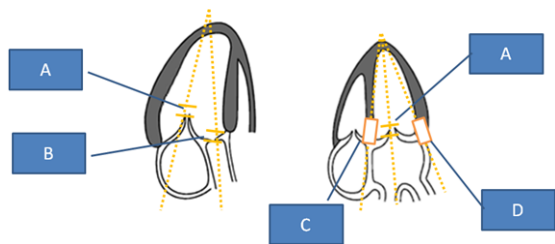
Procedure

- Select [Dual Gate Doppler] on the touch panel.
 - The D1 and D2 cursors are displayed on the B mode image and the location of the sample volume is set automatically.
- Select [Dop Cursor Assist] on the touch panel.
- Select the Doppler combination in [Dual Dop. Combination] on the touch panel.

The system automatically sets the positions of the sample volumes of the D1 and D2 cursors.

If a D cursor is displayed in TDI mode, the D2 cursor inherits the position of the D cursor in TDI mode.

If a D cursor is displayed in another mode, the position of the sample volume for the D2 cursor is automatically set. The D1 cursor inherits the user-specified position.



- A: Left ventricular inflow tract
- B: Left ventricular outflow tract
- C: Septum annulus
- D: Left ventricular free lateral wall annulus

For displaying the apical four-chamber cross-section:

Dual Gate Doppler Combination	D1	D2
PW/PW	Left ventricular inflow tract (A)	Center of screen
PW/TDI	Left ventricular inflow tract (A)	Septum annulus (C)
TDI/TDI	Septum annulus (C)	Left ventricular free lateral wall annulus (D)

For displaying the apical left ventricular long-axis cross-section:

Dual Gate Doppler Combination	D1	D2
PW/PW	Left ventricular inflow tract (A)	Left ventricular outflow tract (B)
PW/TDI	Left ventricular inflow tract (A)	Left ventricular free lateral wall annulus (D)
TDI/TDI	Left ventricular free lateral wall annulus (D)	Septum annulus (C)

Reference information

3.13.1 *Displaying physiological signals* on page 125

3.5 TDI mode

The TDI mode represents the movement speeds of tissues (mainly cardiac muscle) in color on the tomographic image.
 TD-PW mode represents the movement speeds of tissues (mainly cardiac muscle) in a Doppler waveform.
 For details about compatible probes, see the separate manual "Instructions for Use".

Prior confirmation

The following settings must be made in advance.

- Assign [TDI] to a direct switch or custom switch.

- Assign [TD-PW] to a direct switch or custom switch.
- Assign [Sample Volume] to the function menu.

Procedure

1. Display a B mode image in real time.
2. Select [TDI].
 - It displays TDI mode images.
3. Set the flow area.
 - a. Use the trackball to move the flow area. Then press the [Enter] key.
 - b. Use the trackball to change the size of the flow area. Then press the [Enter] key.
4. Display the Doppler waveform.
 - a. Press the [PW] key.
 - b. Use the trackball to adjust the sample volume to the detection position.
 - c. Adjust the size of the sample volume by using the [Sample Volume] multi rotary encoder.
 - d. Press the [Update] key.
 - The TD-PW mode is displayed.



To switch from B mode to TD-PW mode image display

- a. Display the B mode image.
- b. Select [TD-PW].
- c. Press the [Update] key.
 - The TD-PW mode is displayed.

Reference information

10.7.4 Assigning functions on page 343

3.5.1 Switching the active screen

When TD-PW mode is active, B mode images can be activated using the following operations.

Procedure

- Press the [Update] key.
 - Each time you press the [Update] key, it switches which side is active.
- Roll the trackball.

NOTE: This requires that Sweep mode Auto Active is set to [B Active by Cursor movement] or [B/Sweep Active by Cursor movement] in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).

When the setting is [B Active by Cursor movement]

The B mode image becomes active.

Press the [Update] key to activate TD-PW mode again.

When the setting is [B/Sweep Active by Cursor movement]

The B mode image becomes active.

To activate TD-PW mode again, display the cursor at the position where you want to display the TD-PW waveform and stop moving the trackball.

3.6 Adjusting images

You can change image quality parameters of displayed images individually or collectively. Individual parameters are explained on the following pages. For details about parameters not in this chapter, see "Touch panel menus" in this manual.

Batch-changed parameters can be set as QSS presets corresponding to body shapes and organs.

Procedure

- Select the QSS presets to apply.
 - The selected QSS presets are applied.The factory-default QSS presets are [Preset A], [Preset B], [Preset C], and [Preset D].
- The value changed during the exam is reflected in QSS presets.
 - a. Select [QSS Registration] on the touch panel.
 - b. Select a copy-source preset and then the copy-destination preset.
 - c. Select [Copy Execute].
 - The current status of the scanning screen is copied to the selected QSS preset.If [Exit] is selected instead of [Copy Execute], the expanded menu is closed without copying.

Reference information

10.4.1 Editing QSS presets on page 302

10.7.4 Assigning functions on page 343

3.6.1 Adjusting gain

(1) Adjusting B mode image gain

Prior confirmation

If necessary, assign [TGC Memory] to the function menu.

Procedure

- Use the [B] rotary encoder or the [Freeze] rotary encoder to adjust the gain of the B mode image.
 - Turn the [B] rotary encoder or the [Freeze] rotary encoder to the right.
The image becomes brighter.
 - Turn the [B] rotary encoder or the [Freeze] rotary encoder to the left.
The image becomes less bright.
- Adjust gain for each depth.
Adjust the gain by using the [TGC] sliders for the desired depth.
 - Slide the [TGC] slider to the right.
The image becomes brighter.
 - Slide the [TGC] slider to the left.
The image becomes less bright.

Using the changed key positions as user settings

Set TGC to Fixed on the B tab of the presets ([Preset Setup] > [Region] > [B]).

The position of each key can be stored for each application.

- a. Make adjustments by using the [TGC] sliders.
- b. Select [TGC Memory] from the function menu.
- c. Select [Registration] on the touch panel.
- d. Change [TGC Curve] to [Custom] on the touch panel.
- e. Line up the [TGC] sliders in the middle.

Reference information

10.7.4 Assigning functions on page 343

(2) Adjusting M mode image gain

To adjust the gain of the M mode image, perform the following procedure.

Procedure

- Turn the [M] rotary encoder to adjust it.
Changing the offset value for B gain
Change the offset value in M Offset Gain on the M tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [QSS] > [M]).

(3) Adjusting D mode image gain

Adjust the gain in PW, CW, and TD-PW modes.

Procedure

- Turn the [PW] rotary encoder to adjust the D gain.

The gain can also be adjusted in CW and TD-PW modes by using the [PW] rotary encoder in the same way.

(4) Adjusting image gain in the color Doppler mode

Adjust the gain in CF, PD, eFlow, and DFI modes.

Procedure

- Turn the [CF] rotary encoder to adjust the color Doppler gain.

(5) Adjusting gain automatically

Using Auto Optimizer, combine and automatically adjust the image settings and display conditions (Gain, TGC, LGC, baseline shift, PRF, etc.) for the rendered images, in order, to display the optimal image or waveform.

Reference information

For details, see below.

3.6.2 Auto Optimizer on page 91

3.6.2 Auto Optimizer

This function automatically adjusts the depicted images to enable the display of optimized images and waveforms.

Use Target on the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [General]) to set the items to be adjusted automatically.

Prior confirmation

Assign the following to function menus to make automatic adjustments to B or M mode images.

- [Brightness Level]
- [Brightness Level (Manual)]
- [Auto-optimizer Reset]

Procedure

- Press the [Auto-optimizer] key for the B or M mode image.
 - Gain is automatically adjusted and the B or M mode gain display is highlighted. The B or M mode target brightness value can be switched to [Auto] or [Manual] using [Brightness Level]. Set the target value in [Brightness Level (Manual)] when switched to [Manual]. If [Auto-optimizer Reset] is selected in B mode, TGC and LGC are reset to pre-automatic adjustment values.
- Press the [Auto-optimizer] key for the D mode image.
 - The gain, Doppler speed range (PRF), and Doppler baseline are automatically adjusted.

Use Base Line Position under the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [General]) to shift the Doppler baseline.

- Press the [Auto-optimizer] key for the color Doppler mode image.
→ Gain is adjusted automatically for color Doppler.
 - Press the [Auto-optimizer] key while the D cursor is displayed in the B mode or color Doppler mode image.
→ It automatically sets the sample volume to an appropriate position.
- NOTE: This is not available with Dual Gate Doppler.

Reference information

3.4.5 Automatically setting the position of the sample volume (Cardiology) on page 85

10.7.4 Assigning functions on page 343

10.3.7 Application parameters: General on page 286

3.6.3 iVascular

This function automatically identifies the long-axis blood vessels in an image, and sets the position of the flow area, the position and size of the sample volume, the blood flow direction, and the angle of the ultrasound beam (angle correction).

To start iVascular when the [Auto-optimizer] key is pressed, on the Common tab of the preset ([Preset Setup] > [Application] > [Edit Data] > [General]), select Target > Doppler Assist Function > iVascular, and then set iVascular to On. Set the items to be automatically adjusted in iVascular on the above tab.

NOTE: This function is available for the linear probe and the convex probe only.

NOTE: Because the system makes decisions based on the blood flow information that is detected in Color Doppler, the settings might not be accurate depending on the depicted angle of the blood vessel, or if the blood vessel is not adequately filled with color signals. In this case, manually specify the settings.

NOTE: The steering angle cannot be changed.

NOTE: If any of the following functions are running, iVascular cannot start:

- Dual Gate Doppler, TDI mode, Image Compare, D.S.D, Real-time Biplane
- PAN Zoom

Procedure

- Press the [Auto-optimizer] key for the color Doppler mode image.
→ The position of the flow area is set automatically.
NOTE: The size of the flow area does not change.
- Press the [Auto-optimizer] key while the D cursor is displayed in the color Doppler mode image.
→ The position and size of the sample volume, and angle correction are set automatically.
NOTE: The flow area is automatically set, centered by the sample volume.

3.6.4 Switching frequencies

NOTE: Transmission frequency is fixed in CW and TDI modes.

(1) Switching transmission frequencies

Switch the transmission frequency in real time B mode or M mode.

Prior confirmation

Assign [Frequency (B)] to the function menu.

Procedure

- Use [Frequency (B)] in the function menu to switch the transmission frequency.

Reference information

10.7.4 Assigning functions on page 343

(2) Switching the tissue harmonics method

Switches the tissue harmonics method in real time B mode or M mode.

Prior confirmation

Assign [THI Mode] to the function menu.

Procedure

- Use [THI Mode] in the function menu to change the tissue harmonics method.
→ The system switches to the tissue harmonics method (FmT, WbT, HdT).

Reference information

10.7.4 Assigning functions on page 343

(3) Switching the reference frequency

Switches the reference frequency during frequency analysis.

Prior confirmation

Assign [Ref. Frequency (D)] or [Ref. Frequency (Color)] to the function menu.

Procedure

- Use [Ref. Frequency (D)] or [Ref. Frequency (Color)] in the function menu to switch the reference frequency.

Reference information

10.7.4 Assigning functions on page 343

3.6.5 Setting the focus position

Set the focus position of the ultrasound beam to improve the spatial resolution or sensitivity of the image.

Focus settings may be Auto or Manual. The following are set according to the display mode. B mode focus settings can be set in Focus Position on the Focus tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [QSS] > [General]).

Color Doppler mode focus settings can be set in Focus Control(Color) on the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [Color]).

Display modes	Auto focus	Manual focus
B mode	If neither HI Framerate (B) nor eFocusing is selected The focus position (◀) is automatically set in conjunction with the display range. The automatically set focus point can be moved at will. Multi-stage focus can be set. *1	If neither HI Framerate (B) nor eFocusing is selected The focus position (◀) is maintained without linking to the display range. Multi-stage focus can be set. *1
	When HI Framerate (B) is selected The focus position (◀) is automatically set in conjunction with the display range. The automatically set focus point can be moved at will. Only single focus is available.	When HI Framerate (B) is selected The focus position (◀) is maintained without linking to the display range. Only single focus is available.
	When eFocusing is selected The focus range is displayed by (▼/▲). The focus position cannot be changed. Only single focus is available.	
M mode	The focus point is set in coordination with the B mode. Only single focus is available.	
Color Doppler mode (CF, PD, eFlow, TDI, DFI)	When HI Framerate (Col) is not selected It is set near the center of the flow area. Only single focus is available. The focus mark is not displayed.	When HI Framerate (Col) is not selected The focus point can be moved at will within the range of the flow area. Only single focus is available. The focus mark (◀) is displayed in the same color as the flow area.
	When HI Framerate (Col) is selected The focus position is automatically set in conjunction with the flow area. The focus mark is not displayed. The focus position cannot be changed. Only single focus is available. NOTE: HI Framerate (Col) is not supported in DFI mode.	

Display modes	Auto focus	Manual focus
D mode (PW, CW)	It follows the display position of the sample volume and sets the focus point. Only single focus is available.	

*1.

The available focus steps differ according to observation mode (Fundamental, THI) and simultaneous operation mode (B/M, B/PW, etc.).

(1) Moving the focus position

Procedure

- Use the [FOCUS/VELOCITY] paddle switch to move the focus position.
When in B mode
Set Velocity/Focus Puddle SW on the Operation1 tab of the preset ([Preset Setup] > [Region] > [General]) to [Focus] or [Dependent Mode].
Color Doppler mode
Set Velocity/Focus Puddle SW on the Operation1 tab of the preset ([Preset Setup] > [Region] > [General]) to [Focus].
 - a. Make the tomographic image active.
 - b. Use the [FOCUS/VELOCITY] paddle switch to move the focus position.
- Use the trackball to move the focus position.
Set Trackball Priority (Focus) on the Operation1 tab of the preset ([Preset Setup] > [Region] > [General]) to On.
 - a. Make the tomographic image active.
 - b. Use the trackball to move the focus position.

(2) Changing the number of steps and their intervals

Prior confirmation

Assign [Focus Set] to the function menu.

Procedure

1. Set the B mode image to active.
2. Select [Focus Set] from the function menu.
3. Change the number of steps or intervals.
 - Use the [Focus Step] multi rotary encoder to change the number of steps.
 - Use the [Focus Width] multi rotary encoder to change the interval.

Reference information

10.7.4 Assigning functions on page 343

3.6.6 Switching the display range

(1) Changing the display range

The display depth is switched based on the transmission point of the displayed image.

Prior confirmation

Set HI Zoom or Pan Zoom to Off.

Cancel freeze and switch to real time.

Procedure

- Turn the [PAN ZOOM/DEPTH] rotary encoder to change the display range.
When setting the [PAN ZOOM/DEPTH] rotary encoder rotation direction, and setting the displayed image direction
Specify settings for Reverse Depth Control in the preset ([System Preset] > [General] > [Common1] > [Range Zoom Encoder]).
On: Turning the [PAN ZOOM/DEPTH] to the right reduces the displayed image.
Off: Turning the [PAN ZOOM/DEPTH] to the left, expands the displayed image.
NOTE: The upper and lower limits of display ranges vary between probes.

(2) Moving the image in the vertical direction

Moves the tomographic image under observation up and down.

Prior confirmation

Set HI Zoom or Pan Zoom to Off.

Cancel freeze and switch to real time.

Assign [Vertical Shift] to a direct switch, custom switch, or function menu.

Procedure

- Select [Vertical Shift], and then use the trackball to move the tomographic image vertically.

Reference information

10.7.4 Assigning functions on page 343

(3) Setting the scan area

Sets the scanning range of the B mode image.

Prior confirmation

Assign [Scan Area] to a direct switch, custom switch, or function menu.

Procedure

- Set the scan area using [Scan Area] in the function menu.
→ You can enlarge or reduce the scan area.

- Use [Scan Area] assigned to a direct or custom switch.
 - a. Select [Scan Area].
 - b. Use the trackball to enlarge or reduce the scan area.
Roll the trackball to the right to expand the scan area; roll it to the left to shrink it.
 - c. Press the [Enter] key.
 - The configured scan area width is fixed which allows it to be moved.

Reference information

10.7.4 Assigning functions on page 343

(4) Changing the layout in the dual-screen view

Prior confirmation

Assign [B/D Format] or [B/M Format] to a direct switch, custom switch, or function menu.

Procedure

- Select [B/D Format] or [B/M Format].
 - In [U/D], the tomographic image is displayed on top, and the sweep image is displayed on the bottom.
 - In [L/R], the tomographic image is displayed on the left, and the sweep image is displayed on the right.

Reference information

10.7.4 Assigning functions on page 343

(5) Adjusting the baseline position for color display gradation

Prior confirmation

Assign [Baseline Shift (Color)] to the function menu.

Procedure

- Adjust the 0 cm/s position using [Baseline Shift (Color)].

Reference information

10.7.4 Assigning functions on page 343

(6) Changing the display movement speed in sweep mode

Prior confirmation

Assign [Sweep Speed (M)] or [Sweep Speed (D)] to the function menu.

Procedure

- In M mode, change the sweep speed with [Sweep Speed (M)] in the function menus.

- In PW or CW modes, change the sweep speed with [Sweep Speed (D)] in the function menus.

Reference information

10.7.4 Assigning functions on page 343

(7) Shifting the baseline vertically

This adjusts the baseline (0 cm/s) position of the waveform.

Prior confirmation

Assign [Baseline Shift (D)] to the function menu.

Procedure

- Use [Baseline Shift (D)] in the function menu to adjust the 0 cm/s position.

Reference information

10.7.4 Assigning functions on page 343

(8) Changing the velocity range

This changes the vertical axis display range or the color flow velocity value range in D mode.

Prior confirmation

Assign [Vel. Range (D)] or [Vel. Range (Color)] to the function menu.

Procedure

- In PW or CW modes, adjust the value with [Vel. Range (D)] in the function menu.
- In color Doppler mode (CF, PD, or eFlow), adjust the value with [Vel. Range (Color)].

Reference information

10.7.4 Assigning functions on page 343

3.6.7 Rotating and inverting images

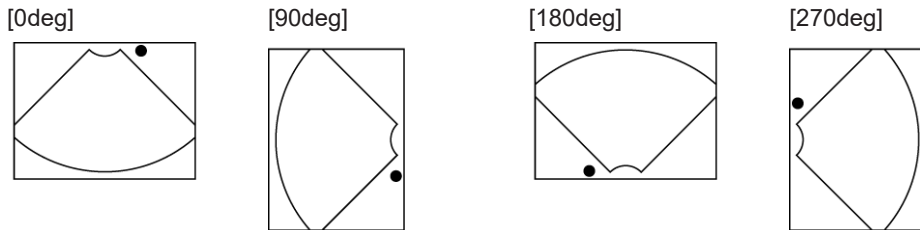
(1) Rotating tomographic images

Prior confirmation

Assign [Image Rotation] to the function menu.

Procedure

- Rotate the tomographic image by using [Image Rotation].
→ The following is displayed according to the value.



Reference information

10.7.4 Assigning functions on page 343

(2) Inverting tomographic images

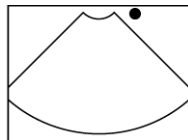
Prior confirmation

Assign [Invert L/R] or [Invert U/L] to a direct switch, custom switch, or function menu.

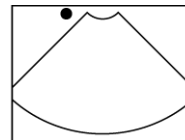
Procedure

- Select [Invert L/R] on the touch panel or in the custom switches.
→ The tomographic image is inverted L/R.

Off

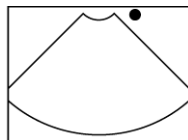


On

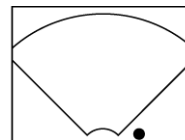


- Select [Invert U/L] on the touch panel or in the custom switches.
→ The tomographic image is inverted vertically.

Off



On



Reference information

10.7.4 Assigning functions on page 343

3.6.8 Inverting Doppler waveform and colors

(1) Inverting the waveform display

Prior confirmation

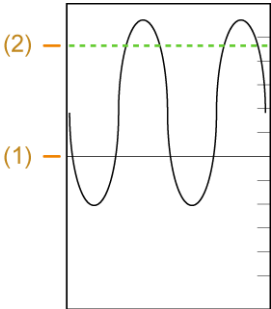
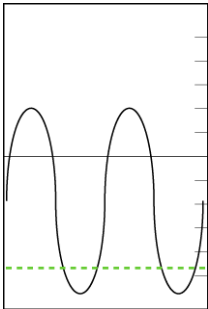
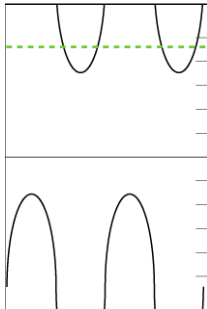
Assign [Invert Spectrum] to a direct switch, custom switch, or function menu.

Procedure

- Select [Invert Spectrum] on the touch panel or in the custom switches.

Display example

The top and bottom of the displayed waveform is inverted for the axis set with Invert Axis (D) on the Common tab in the preset ([Preset Setup] > [Region] > [Doppler]).

[Invert Spectrum]	Off	On	On
[Invert Axis (D)]	N/A	[Center]	[Base Line]
Display example (1) is the center line. (2) is the baseline.			

If Invert Link is set to On in the Common tab in the preset ([Preset Setup] > [Region] > [Doppler]), the color polarity is inverted in coordination with [Invert Spectrum].

Reference information

10.7.4 Assigning functions on page 343

(2) Inverting color polarity

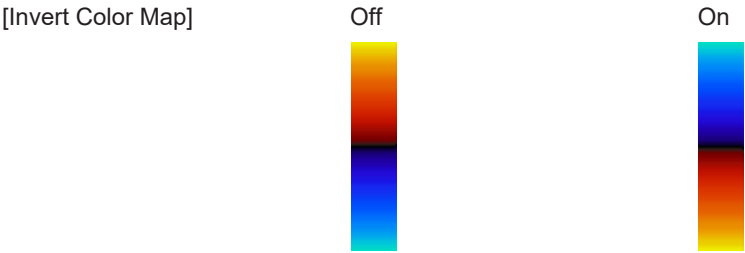
The color map can be inverted in CF, Directional PD, Directional eFlow, and Directional DFI modes.

Prior confirmation

Assign [Invert Color Map] to a direct switch, custom switch, or function menu.

Procedure

- Select [Invert Color Map] on the touch panel or in the custom switches.
→ Color polarity is inverted.



If Invert Link is set to On in the Common tab in the preset ([Preset Setup] > [Region] > [Doppler]), the color polarity is inverted in coordination with [Invert Spectrum].

Reference information

10.7.4 Assigning functions on page 343

3.6.9 Zooming images

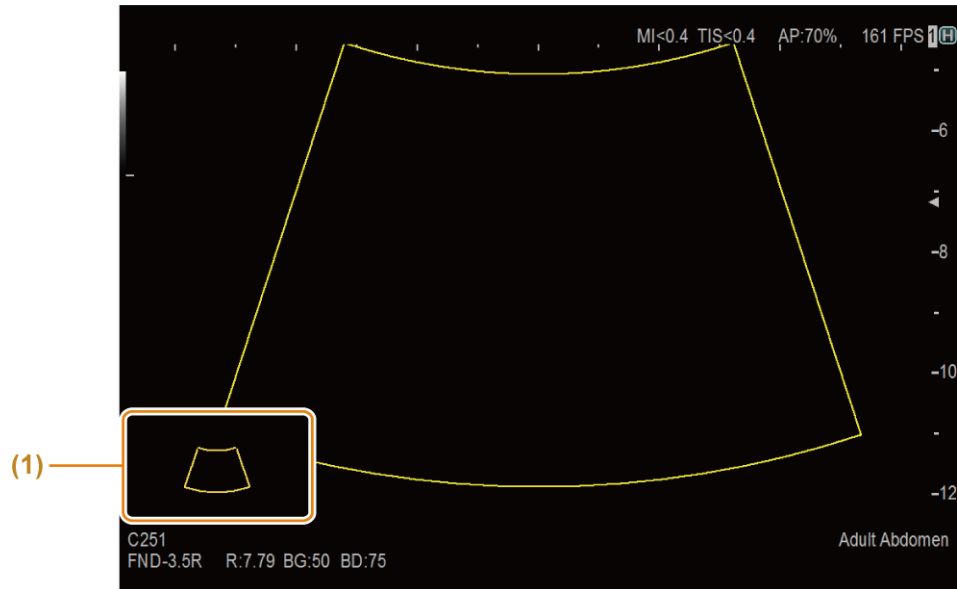
Zooms in on any desired region of the tomographic image.

Pan Zoom and HI Zoom are the methods for zooming in on tomographic images.

Pan Zoom can also zoom in on a frozen image.

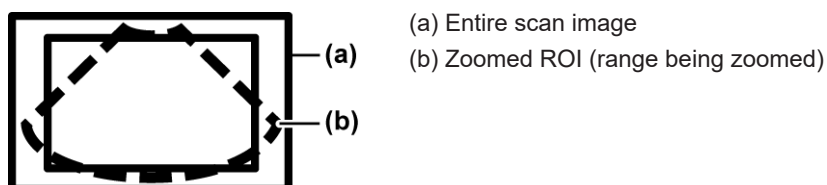
HI Zoom displays a more detailed line density than Pan Zoom, and a high-resolution, enlarged image at a high frame rate. HI Zoom works only on real time tomographic images.

In both the Pan Zoom and the HI Zoom method, a reference image is displayed, showing the section of the tomographic image on which you zoomed in. The display of the reference image can be set in Reference Display on the Common tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [B]).



(1) Zoom reference image

Displays a graphic to show the zoomed section of the tomographic image.



NOTE: A still image directly before zooming is shown as the zoom reference image. For this reason, the display location and image quality may differ from the zoomed image. Use a zoomed image in an examination.

(1) Pan Zoom

NOTE: 360° radial display probes are not supported.

(a) Starting Pan Zoom in real time

Prior confirmation

Set HI Zoom to Off.

Procedure

1. Press the [PAN ZOOM] key to turn Pan Zoom to On.
2. Turn the [PAN ZOOM/DEPTH] rotary encoder or the [Pointer] rotary encoder to zoom in on the image.
→ The image is zoomed in or out about the center.
3. Roll the trackball to display the target area.
4. If necessary, press the [Freeze] key to freeze the image.
Even after freezing an image, you can change the zoom magnification and zoom target area.

(b) Launching Pan Zoom after a freeze

Procedure

1. Press the [Freeze] key.
→ This freezes the image.
2. Turn the [PAN ZOOM/DEPTH] rotary encoder or the [Pointer] rotary encoder to zoom in on the image.
3. Roll the trackball to display the target area.

(c) Closing Pan Zoom

Procedure

1. Press the [PAN ZOOM] key.

(2) HI Zoom

NOTE: 360° radial display probes are not supported.

Prior confirmation

Set Pan Zoom to Off.

Cancel freeze and switch to real time.

If necessary, set HI Zoom Cycle Control to On in the preset ([Preset Setup] > [SystemPreset] > [General] > [Common 2]).

Procedure

1. Press the [HI Zoom] key.
For Color Flow, eFlow, and Power Doppler
The target area is enlarged when you press the [HI Zoom] key.
2. Move the ROI or adjust the ROI size.
 - a. Switch the trackball function to .
 - b. Press the [Enter] key.
To move the ROI:

When the ROI is displayed as a dotted line, move the trackball to move the ROI.

To adjust the size of the ROI:

When the ROI is displayed as a solid line, move the trackball to adjust the ROI size.

Press the [UNDO] key to return to step 1.

3. Enlarge the target area.

- Press the [Update] key.
- If HI Zoom Cycle Control is set to On, press the [HI Zoom] key.

To return the image to its original size before it was enlarged:

Press the [UNDO] key to return to step 2.

To enlarge a HI Zoom image:

When the image is magnified, turn the [PAN ZOOM/DEPTH] rotary encoder clockwise to further enlarge the image and switch the image to PAN Zoom mode. If you roll the trackball while the image in this state, you can move the image to display a different target area. To return to HI Zoom, turn the [PAN ZOOM/DEPTH] rotary encoder counterclockwise.

4. Press the [HI Zoom] key again to end HI Zoom.

3.6.10 Switching observation modes (THI)

Switch the observation mode to enhance spatial resolution.

The tomographic image observation mode includes B mode and tissue harmonics (THI mode).

- THI mode

THI mode is an observation mode that forms images from the harmonic component reflected from tissue (tissue harmonics). Tissue harmonics enables a clear image that is free from artifacts such as side lobes. The sensitivity decreases slightly, because the transmission frequency is increased. Pay careful attention to the sensitivity when examining a patient.

This observation mode is divided into three classifications by the method of transmission.

- FmT: Filter-method Tissue Harmonic Imaging
This method displays a THI mode image without reducing the frame rate.
- WbT: Wide-band Tissue Harmonic Imaging
This method displays a THI mode image with higher resolution than FmT.
- HdT: High Definition Tissue Harmonic Imaging
This method displays a THI mode image with higher resolution than WbT.

NOTE: Only some probes are compatible with THI mode. See the separate manual "Instructions for Use".

(1) Switching observation modes

Prior confirmation

Assign [THI] to a direct switch, custom switch, or function menu.

Procedure

1. Set the B mode to active.
2. Set [THI] on the touch panel or in the custom switches to On.

Observation mode	Tx mode display of frequency	Explanation
B mode [THI] is set to Off.	"FND"	Displays images in normal B mode.
THI mode [THI] is set to On.	"FmT", "WbT", or "HdT"	Displays as a tissue harmonic image.

Reference information

3.6.4 Switching frequencies on page 93

10.7.4 Assigning functions on page 343

3.6.11 Setting image quality filters

Filter processing is used to reduce speckle noise and artifacts and to emphasize structures.

Prior confirmation

If necessary, assign the following function:

Assign [Smooth/Enh. (B)], [Echo Enh. (B)], [Enh.Level (M)], [Echo Enh. (M)], [ANR], [NNR], [NNR Type], and [Carving Imaging] to the function menus.

Assign [HI REZ], [BCF (B)], and [Texture] to a direct switch, custom switch, or function menu.

Apply image quality filters to B mode or M mode images to improve image quality. There are 8 types of filter. For details about the probes that are compatible with [ANR] and [NNR], see the separate manual "Instructions for Use".

- [HI REZ]: Maintains the edges of structures while reducing speckle noise.
- [BCF (B)]: If the [HI REZ] setting is On, the edges of structures are clarified.
- [Smooth/Enh. (B)]: Changing smoothing or edge enhancement levels on the B mode image.
- [Enh. Level (M)]: Changes the level of edge enhancement on the M mode image.
- [Echo Enh. (B)] and [Echo Enh. (M)]: Creates an image from a weak signal by lowering brightness in hypoechoic areas and increasing it in high-echoic areas.
- [Texture]: Changes the texture of image quality.
- [ANR]: Reduces artifacts in B mode images. The effect is also reflected on the M mode image.
- [NNR]: Reduces artifacts in B mode images.

- [Carving Imaging]: Changes the combination of NNR type (C, D, E) and level.

Procedure

- Set [HI REZ] to On to reduce speckle noise while maintaining the edges of structures.
 - a. Change the level by using [HI REZ Level].
- Changing smoothing or edge enhancement levels on the B mode image.
 - To use Smoothing to create a smoother image, adjust [Smooth/Enh. (B)] to a value in the range from [-8] to [-1].
 - To use Enhance to create an image with enhanced edges, adjust [Smooth/Enh. (B)] to a value in the range from [1] to [8].
- Set [BCF (B)] to On to clarify the edges of structures.
NOTE: Set [HI REZ] to On.
 - a. Change the level by using [HI REZ Level].
- Use [Enh. Level (M)] to change the level of edge enhancement on the M mode image.
- Adjust [Echo Enh. (B)] or [Echo Enh. (M)].
 - Creates an image from a weak signal by lowering brightness in hypoechoic areas and increasing it in high-echoic areas.
- Change [Texture] to [Smooth] or [Sharp].
- Adjust the level by using [ANR].
NOTE: This function is not available in the CHI mode.
- Select the type by using [NNR Type], and adjust the level by using [NNR].
 - There are five types (A to E) of NNR.
 - Type A reduces artifacts in B mode images.
 - Level B reduces artifacts and noise in heart chambers and vessels.
 - Level C has a stronger effect than level B, reducing more noise and a greater number of artifacts in images.
 - Level D has a stronger effect than level C, reducing more noise and a greater number of artifacts in images.
 - Type E has a weaker effect than Type C, reducing less noise and fewer artifacts in images.
- Adjust the level in [Carving Imaging].
 - This setting changes the combination of NNR type and level.
 - Each combination of NNR type (C, D, or E) and level (Low, Mid, or High) results in a different strength of the NNR effect.

Reference information

10.7.4 *Assigning functions* on page 343

3.6.12 Compound modes

Ultrasound beams from multiple angles are composited to reduce ultrasonic expositometry direction artifacts such as side lobes, multiechoes, and speckle noise.

Prior confirmation

This function is compatible with convex and linear probes. See the separate manual "Instructions for Use".

Assign [Compound] and [Compound #] to a direct switch, custom switch, or function menu. If necessary, assign [Angle (Compound)] to the function menu.

Procedure

1. Set the B mode image to active.
2. Select [Compound].

Changing compound mode settings

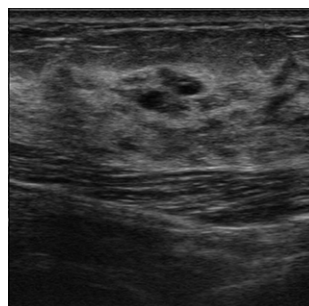
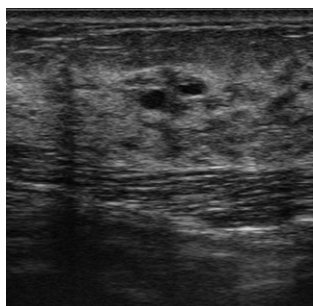
- Change the angle by using [Angle (Compound)].
- Change the number of transmit and echo angles with [Compound #].



Orientation mark when [Compound] is On.

Display example

On the left, [Compound] is Off. On the right, [Compound] is On.



NOTE: If [Compound] is On, the frame rate might decrease.
To end the operation, select [Compound] again and turn it Off.

Reference information

10.7.4 Assigning functions on page 343

3.6.13 Trapezoidal scan

Displays an image with a trapezoidal field of view using a linear probe and enlarges the azimuth direction of the field of view.

Prior confirmation

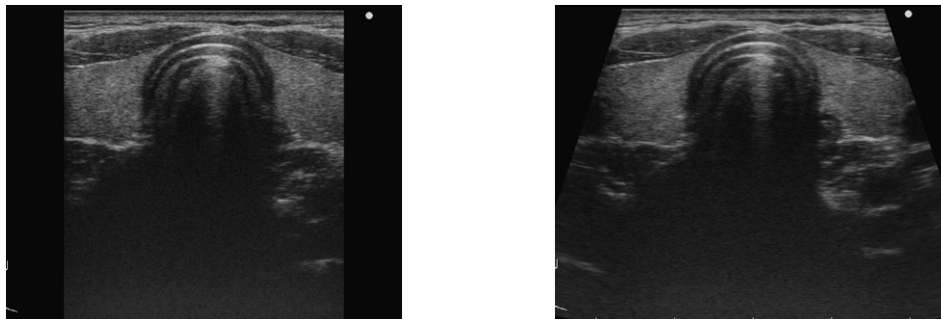
For details about compatible probes, see the separate manual "Instructions for Use".
Assign [Trapezoidal Scanning] to a direct switch, custom switch, or function menu.

Procedure

1. Set the B mode image to active.
2. Select [Trapezoidal Scanning].

Display example

On the left, [Trapezoidal Scanning] is Off. On the right, [Trapezoidal Scanning] is On.



To end the operation, select [Trapezoidal Scanning] again and turn it Off.

Reference information

10.7.4 Assigning functions on page 343

3.6.14 Wide scanning

Displays an image with a wide field of view, and enlarges the azimuth direction of the field of view.

NOTE: An image obtained by wide scanning cannot be used for analysis.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".

Assign [Wide Scanning] to a direct switch, custom switch, or function menu.

Procedure

1. Set the B mode image to active.
2. Select [Wide Scanning].
3. To end wide scanning, select [Wide Scanning] again to turn it Off.

Reference information

10.7.4 Assigning functions on page 343

3.6.15 Adjusting the direction of the ultrasound beam

Changes the steering angle of the ultrasound beam (beam steering) of an electronic linear probe.

Prior confirmation

Only a linear probe is supported. See the separate manual "Instructions for Use".
Assign the following required menus to the function menu.

- [Beam Steer (B)]
- [Beam Steer (D)]
- [Beam Steer (Color)]

Procedure

1. Switch to real time.
2. Set the steering angle.
 - Use [Beam Steer (B)] to adjust B mode images.
 - Use [Beam Steer (D)] to adjust D mode images.
 - Use [Beam Steer (Color)] to adjust color Doppler mode images.

NOTE: The steering angle range varies depending on the probe.

Reference information

10.7.4 Assigning functions on page 343

3.7 Dynamic Slow-motion Display (D.S.D.)

DSD displays real-time images and slow-motion images side by side.

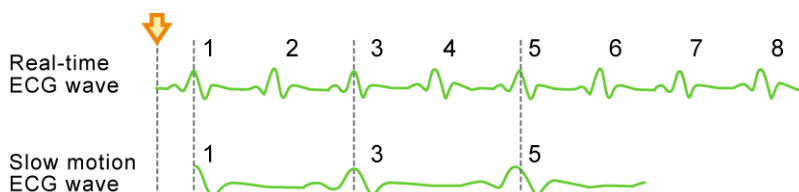
With the real-time image remaining displayed on the left, a slow-motion image is displayed on the right. It is a mode in which you can observe the quick movements of the embryonic heart and valve cusps in detail.

D.S.D. includes two modes: D.S.D. (ECG) mode and D.S.D. (Time) mode.

NOTE: The optional product SOP-ARIETTA750-57 is required.

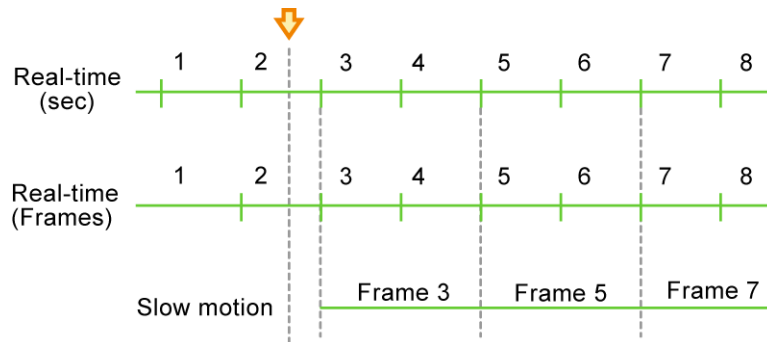
NOTE: This function is not available in DFI mode.

- D.S.D. (ECG) mode
This mode synchronizes with the ECG R wave for a slow-motion display. The slow-motion display is refreshed at a fixed R-wave interval.



The image above shows the case of the slow motion display being refreshed every two heartbeats. The arrow indicates the timing of the switch to DSD (ECG) mode.

- DSD (Time) mode
Slow-motion display starts from the time it is selected in the menu. The slow-motion display is refreshed at the set time interval



The image above shows the slow motion display when refreshed every two seconds. The arrow indicates the timing of the switch to DSD (Time) mode.

3.7.1 Displaying in D.S.D. (ECG) mode

This mode synchronizes with the ECG R wave for a slow-motion display.

Prior confirmation

Select [ECG Display] from the Physio tab to display physiological signals (ECG).
Configure the following settings as necessary.

- Assign [DSD (ECG)] to a direct switch, custom switch, or function menu.
- Assign [DSD Speed] to the function menu.
- Assign [DSD Refresh] to a direct switch, custom switch, or function menu.

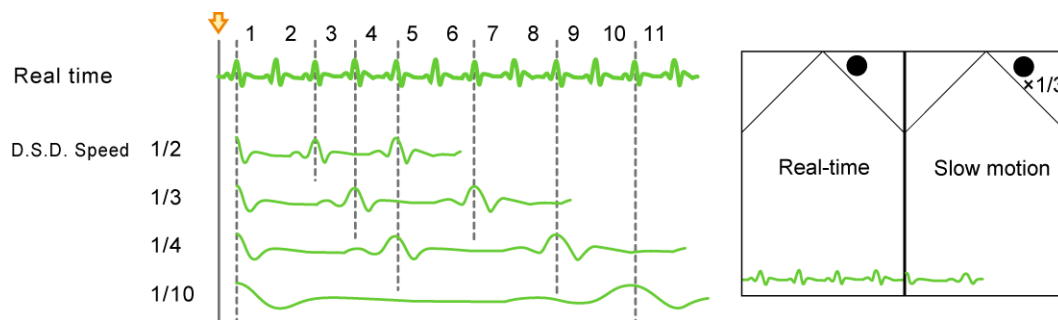
Procedure

1. Display B mode or color Doppler mode in the single-screen view in real time.
2. Select [DSD (ECG)] on the touch panel or in the custom switches.
 - The screen switches to a DSD dual-screen view. Real time is displayed on the left side, and slow-motion on the right side.

(1) Changing the speed of the slow motion display

Procedure

- Select Playback Speed by using [DSD Speed] in the function menu.
 - Displays slow-motion images at the selected speed.
 The setting value is displayed at the top right of the slow-motion image.



The dotted lines reflect the refresh timing of the slow-motion image

(2) Manually refreshing the slow motion display

Procedure

- Select [DSD Refresh] on the touch panel or in the custom switches.
→ Images are refreshed according to the selected timing.

Reference information

10.7.4 Assigning functions on page 343

3.7.2 Displaying in D.S.D. (Time) mode

Displays slow motion at a set time unit.

Prior confirmation

Configure the following settings as necessary.

- Assign [DSD (Time)] to a direct switch, custom switch, or function menu.
- Assign [DSD Speed] to the function menu.
- Assign [DSD Refresh Timing] to the function menu.
- Assign [DSD Refresh] to a direct switch, custom switch, or function menu.

Procedure

1. Display a tomographic image (B mode or color Doppler mode) in single-screen view in real time.
2. Select [DSD (Time)] on the touch panel or in the custom switches.
→ The screen switches to a DSD dual-screen view. Real time is displayed on the left side, and slow-motion on the right side.

(1) Changing the speed of the slow motion display

Procedure

- Select Playback Speed by using [DSD Speed] in the function menu.
→ Displays slow-motion images at the selected speed.
The setting value is displayed at the top right of the slow-motion image.

(2) Manually refreshing the slow motion display

Procedure

- Select [DSD Refresh] on the touch panel or in the custom switches.
→ Images are refreshed according to the selected timing.

(3) Changing the refresh interval of the slow-motion images

Procedure

- Select [DSD Refresh Timing] from the function menu.
→ The slow motion display is refreshed at the selected intervals.

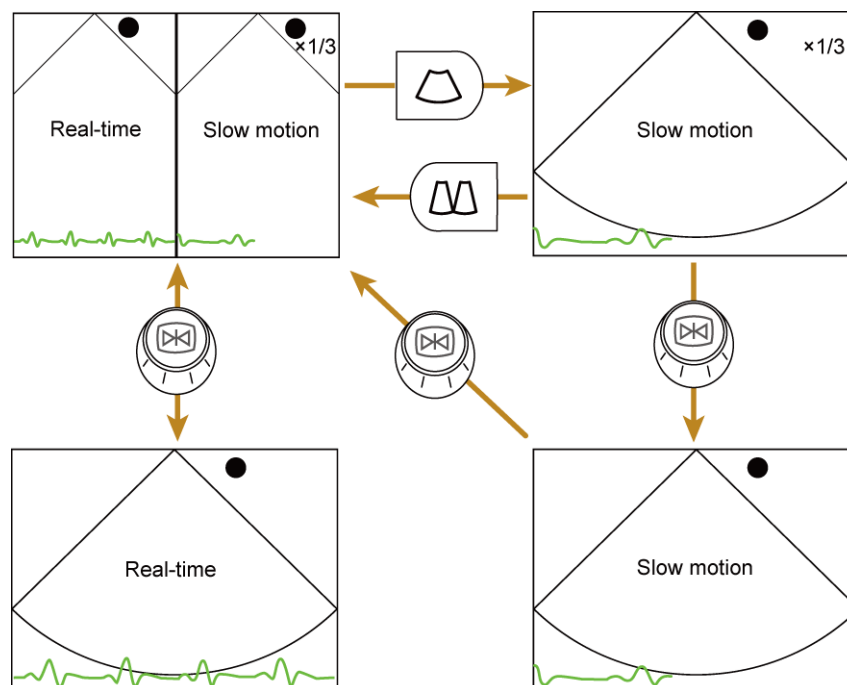
Reference information

10.7.4 Assigning functions on page 343

(4) Switching screens

Procedure

- Press the [Single] key.
→ The slow-motion image is displayed in the single-screen view.
- Press [Freeze] on the DSD dual-screen view.
→ The finishing frame of the real-time image is displayed in the single-screen view.
When the image is unfrozen, it is reset to a D.S.D. dual-screen view.



Reference information

10.7.4 Assigning functions on page 343

3.8 Panoramic display

This function moves the probe in a wide range and displays images in panorama.

Prior confirmation

The optional product SOP-ARIETTA750-1 is required.

Assign [Panoramic View] to a direct switch, custom switch, or function menu.

If necessary, assign [Image Rotation] to the function menu.

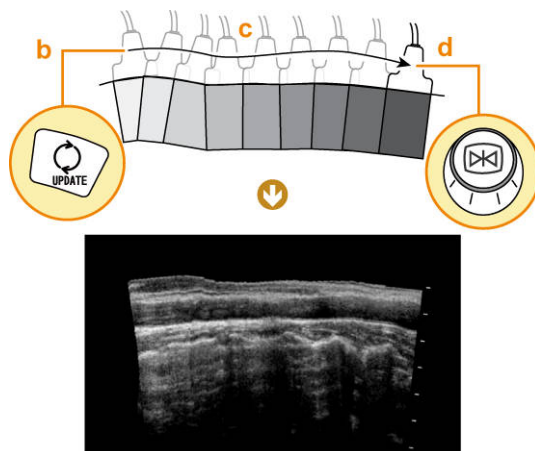
This enables observation across a wider area that does not fit in the single-screen view in normal B mode.

The following actions are possible on the displayed panoramic image:

- Measurements can be made as a B mode image. For details about measurements, see the separate manual "Measurements 1".
- Body marks can be displayed.
- Still images can be saved by pressing the [Store] key.

Procedure

1. Display a real-time tomographic image.
NOTE: Turn off Compound and Trapezoidal Scan.
NOTE: Set the display depth to 10 cm or less.
2. Adjust the image.
 - Adjust the brightness so that the center of the image is displayed at an appropriate brightness.
3. Select [Panoramic View] on the touch panel or in the custom switches.
→ The screen switches to a tomographic image in the single-screen view.
4. If necessary, adjust the B-mode image.
5. Acquire the images.
 - a. Apply ample ultrasound gel to the examination region.
 - b. Press the [Update] key.



- c. Move the probe along the region of the patient following the transducer's array direction.
→ If the edge of the panoramic image goes beyond the screen, it is adjusted to fit inside the screen.
When scanning a bulging organ, the image may appear at an angle.
- d. Press the [Freeze] key.
- e. Adjust the orientation of the image with [Image Rotation].

Searching for an image

- a. Press the [Cine Search] key.
- b. Roll the trackball or turn the [Pointer] rotary encoder.
→ The searched B mode image is displayed.

Recapturing Images

- a. Press the [Freeze] key.
 - b. Repeat steps a to e of procedure 5.
6. To end the panoramic view, select [Panoramic View] on the touch panel or custom switch again and turn it Off.

Reference information

10.7.4 Assigning functions on page 343

3.9 Modes that can be displayed for specific probes

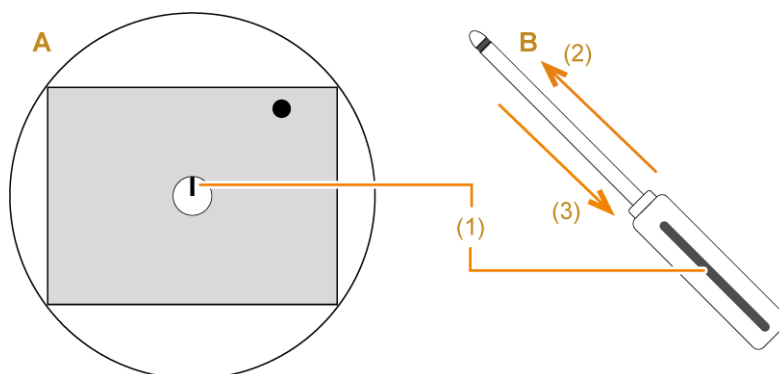
3.9.1 360° radial display mode

This section describes image display with a 360° display probe.

NOTE: For details about handling a 360° radial display probe, see the documentation provided with the probe.

In 360° radial display mode, an image is displayed in the following format:

You can set how radial probes are displayed by default at application startup, by using the Radial tab in the presets ([Preset Setup] > [Region] > [B]).



A: Format of a displayed image B: Probe (1) Index mark (2) Insertion direction. (3) Removal direction.

The orientation mark of the probe will be displayed in the center of the image.
"PROX" or "DISTAL" will be displayed at the bottom right of the screen.

(1) Inverting and rotating images

You can rotate a B mode image around the center of the image or invert the visual field direction.

Prior confirmation

Assign [Invert L/R] to a direct switch, custom switch, or function menu.

Assign [Image Rotation] to the function menu.

Procedure

- Invert images by using [Invert L/R].
 - When "PROX" is displayed in the bottom right of the screen, it indicates that the image is from the viewpoint of the probe's insertion direction.
When "DISTAL" is displayed in the bottom right of the screen, it indicates that the image is from the viewpoint of the probe's removal direction.
 - Rotate the image by using [Image Rotation].
 - The B mode image is rotated around the center of the image.
- NOTE: [Image Rotation] options differ depending on the probe.

Reference information

10.7.4 Assigning functions on page 343

(2) Switching the display range of the B mode image

You can switch the display width of the B mode image between 360° or 180°.

Prior confirmation

Assign the following required menus to a direct switch, custom switch, or function menu.

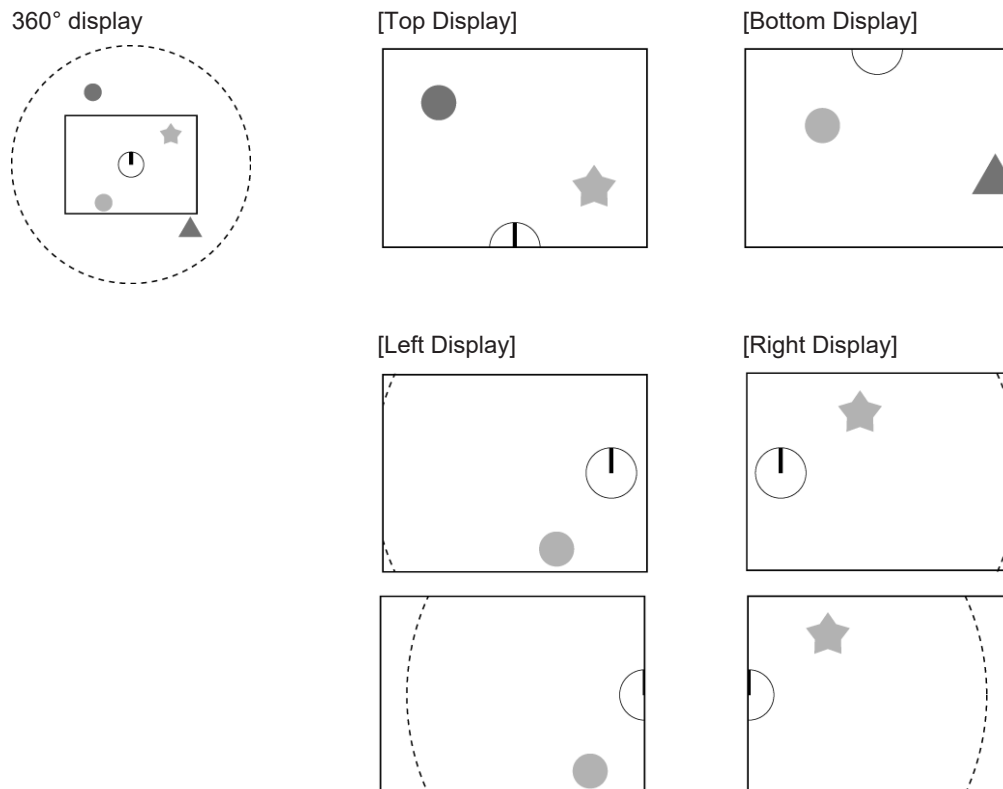
- [Top Display]
- [Bottom Display]
- [Left Display]
- [Right Display]

Procedure

- Select from [Top Display], [Bottom Display], [Left Display], and [Right Display]
- To switch the display width back to 360°, select the menu item that is active (lit in orange).

Display example

Examples of displaying the portion inside the rectangle frame on the screen are as follows:



Reference information

10.7.4 Assigning functions on page 343

(3) Displaying in another mode

In 360° radial display mode, you can also apply M mode, color Doppler mode, or D mode in the same way as with a general probe.

In B/M mode, even if the M cursor is displayed outside the range of the B mode image, the M mode image at the M cursor is displayed.

3.9.2 Brachytherapy

Displays a Brachytherapy target in a B mode image.

Brachytherapy is a type of radiation therapy that embeds a radioactive material (small radioactive source) in the prostate to kill cancer cells.

The following operations are available on the system.

1. The insertion location of the small radioactive source is set using a grid display.
2. When embedding the small radioactive source, display the target set in 1.

NOTE: For details about the probes that are compatible with Brachytherapy, see the separate manual "Instructions for Use".



CAUTION

Use the grid display and target display as a positional guideline.

There might be blood vessels or other organs in the puncture path that are not displayed on the screen.

Check the safety of any puncture path that is not displayed on the image.

(1) Setting the small radioactive source insertion position

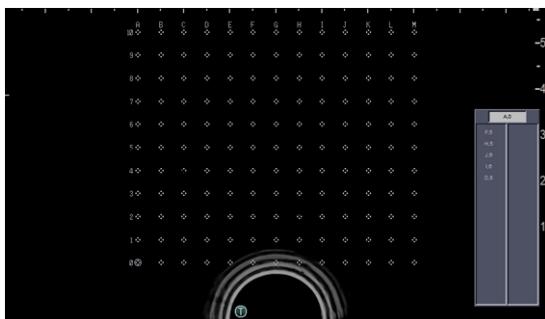
Display the grid and set the small radioactive source insertion position.

Prior confirmation

Assign [Brachytherapy] to the function menu.

Procedure

1. Press the [Probe/Preset] key.
2. From the function menu, switch the application to [Prostate].
3. Display the grid.
 - a. Press the [Single] key or [B] key to switch to a transverse image (single-screen view) of the prostate.
 - b. Select [Brachytherapy].
→ A list of puncture locations is displayed.
 - c. Select [Grid].
Changing the grid display type:
Select the grid type using [Grid Type] multi rotary encoder on the touch panel, and change it.
4. Set the small radioactive source insertion location (coordinates) within 30 points.
 - a. Use the trackball to move the circle-shaped mark to the insertion location.
 - b. Press the [Enter] key.
→ The insertion location is displayed in the insertion location list.
 - c. Repeat steps a to b.



Adding a new point to the insertion location coordinates list:

- a. Turn [Table Display] On.

- A list of puncture locations is displayed.
- b. Move the circle-shaped mark to the coordinates you want to add.
- c. Select [Add].
- d. Move the insertion location list highlight to the insertion coordinates.
- e. Press the [Enter] key.

Removing a registered point from the insertion location coordinates list

- a. Turn [Table Display] On.
- b. Select [Delete].
- c. Move the insertion location list highlight to the removal coordinates.
- d. Press the [Enter] key.
- The following message appears: "Memory data will be deleted."
- e. Select [OK].

Reference information

10.7.4 Assigning functions on page 343

(2) Displaying the small radiation source insertion target position

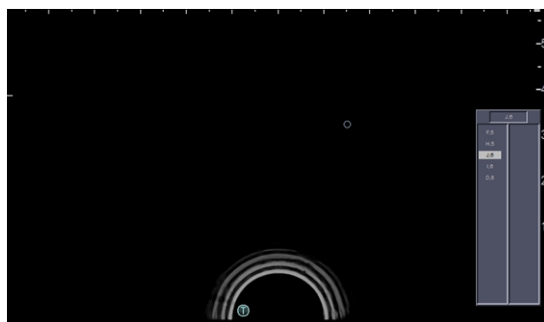
Display the insertion target position list when embedding a small radiation source.

Prior confirmation

Assign [Brachytherapy] to the function menu.

Procedure

1. Press the [Probe/Preset] key to switch the application to [Prostate].
2. Display targets.
 - a. Press the [Single] key or [B] key to switch to a transverse image (single-screen view) of the prostate.
 - b. Select [Brachytherapy].
 - c. Select [Target].



- The first target (coordinates) on the insertion target position list is highlighted. The circle-shaped mark appears in the target position on the screen.

3. Press the [Enter] key to display the next target.
 - The next target (coordinates) on the insertion target position list is highlighted. The circle-shaped mark appears in the highlighted target position on the screen.

Reference information

10.7.4 Assigning functions on page 343

3.9.3 Displaying in real time biplane

You can use a biplane probe to display the real-time images of two cross-sections.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".
Assign [Real-time Biplane] to a direct switch, custom switch, or function menu.

Procedure

1. Confirm that the probe is connected.
2. Press the [Probe/Preset] key to switch probes.
3. Select [Real-time Biplane].
 - This switches to a B mode image in the dual-screen view.

Screen display

The screen display differs depending on the probe.

Probe	Left screen	Right screen
1-connector-type biplane probe	Longitudinal plane (A cross-section line indicating the observation cross-section on the lateral plane is displayed.)	Lateral plane (A cross-section line indicating the observation cross-section on the longitudinal plane is displayed.)

A cross-section line is the line where two scan planes intersect and is indicated by two (top and bottom) arrows displayed on the image.

Reference information

10.7.4 Assigning functions on page 343

3.9.4 OMNI mode

Temporarily fix the transducer of a transvaginal 3D probe at the desired angle and display a tomographic image at that angle.

Prior confirmation

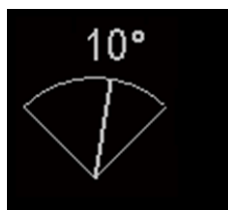
For details about compatible probes, see the separate manual "Instructions for Use".
Assign [Omni Plane Angle Setting] to the function menu.

Procedure

1. Press the [Probe/Preset] key to switch to the application for a transvaginal 3D probe.
2. Press the [B] key to switch to the B mode image (single-screen view).
NOTE: Exit 3D/4D.
3. Use [Omni Plane Angle Setting] to set the angle of the transducer.

→ The B mode image is displayed at the adjusted angle.

In item B in the region data settings, if both the [Omni Plane Mark Display] and [Omni Plane Angle Display] check boxes are selected (☑), the angle of the transducer is displayed as follows at the top left of the screen.



Reference information

10.7.4 Assigning functions on page 343

3.9.5 Displaying assist lines

Lines corresponding to the 5mm interval scale on the long axis of the probe head case are displayed on the tomographic image.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".
Assign [Assist Line] to a direct switch, custom switch, or function menu.



CAUTION



Use the assist lines to help with body surface marking. This function is not to be used for any other application.

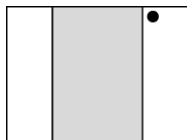
The assist lines are not for acquiring accurate positional information. They cannot be used for measurement applications. Do not use these assist lines as a puncture guide line.

Procedure

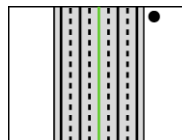
1. Display a tomographic image in the single-screen view.
NOTE: End HI Zoom and Pan Zoom.
2. Select [Assist Line].
→ The following message appears: "An assist line will appear. Use it as assistance in marking. DO NOT use it as a puncture guide line.". Select [OK] to display assist lines.

Display example

Lines are displayed at 5 mm intervals from the tomographic image center line.



[Assist Line]: Off



[Assist Line]: On

To hide the assist lines, select [Assist Line] again and set it to Off.

Reference information

10.7.4 Assigning functions on page 343

3.10 Picture in Picture (PinP) mode

An optical image (acquired from an endoscope, abdominoscope, or similar apparatus) is displayed together with an ultrasonic image. (Only analog video signal input is supported.) Picture in Picture (PinP) is a mode in which an ultrasonic image can be displayed together with an optical image acquired from an endoscope, abdominoscope, or similar apparatus. Either one or both images can be displayed.

The size of the displayed optical image can be switched according to the purpose.

NOTE: The optional product SOP-ARIETTA750-63 is required for PinP mode.

3.10.1 Displaying the PinP window

You can display an optical image on the screen.

Prior confirmation

Configure the following settings as necessary.

- Assign [PinP Window] to a direct switch, custom switch, or function menu.
- Assign [PinP] to the function menu.

Procedure

1. Select [PinP Window].
→ The PinP window is displayed.

(1) Changing the size of the PinP window

Procedure

1. Select [PinP] on the touch panel.
2. Select the size.
NOTE: The PinP window size [Half] cannot be selected in M mode, D mode, or real time biplane mode.

(2) Moving the position of the small PinP window

Procedure

1. Select [PinP] on the touch panel.
2. Select the position.
→ The PinP window moves to the selected position.

(3) Saving the image displayed in the PinP window

You can save the image displayed in the PinP window regardless of whether a frozen or real-time ultrasonic image is displayed.

Still images can be saved in RGB format only, and videos can be saved in Video Clip format only.

For details about how to save an image, see "Outputting Images" in this manual.

3.11 Displaying the puncture guide lines

A puncture guide line is displayed on the B mode image as a guide to the direction in which the puncturing needle should be inserted.

Prior confirmation

Assign [Puncture Adapter Select] and [Puncture Angle Select] to the function menu.

If necessary, assign [Puncture Depth Display] and [Puncture Guide Line] to a direct switch, custom switch, or function menu.



CAUTION



- **Check if the puncture adapter model name on the screen matches the puncture adapter currently being used.**
When using a probe or puncture adapters that have multiple insertion angles, confirm that the insertion angle of the puncture adapter is identical to the angle set on the screen.
 - **Puncture guide lines should be used as a guide for the directionality of puncture needle insertions.**
Verify the bending and direction of the puncturing needle with the needle echo that is displayed on the monitor.
There might be blood vessels or other organs in the puncture path that are not visible on the screen.
Confirm the safety of puncture paths that aren't displayed on the monitor.
 - **For details on puncturing, puncture adapter specifications, handling, and storage, see the documentation included with the probe.**
-

Procedure

1. Press the [B] key to switch to the B mode image (single-screen view).

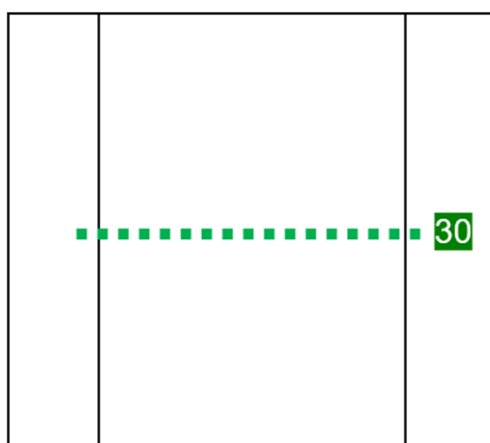
2. Select [Puncture] from the function menu.
If more than one puncture adapter is compatible
 In the displayed dialog box, select the puncture adapter that you want to use, and then click [OK].
 → Puncture guide lines are displayed.
3. If necessary, select [Puncture Adapter Select] and switch the adapter.
4. Use [Puncture Angle Select] on the touch panel to select puncture angle or the distance from the ultrasonic irradiation area to the puncture guide line.
5. Display the puncture depth.
 - a. Select [Puncture Depth Display] on the touch panel or in the custom switches.
 - b. Use the trackball to move the arrow.
6. To end the puncture guide line display, select [Puncture Guide Line] on the touch panel or custom switch.

3.11.1 Displaying multiple puncture guide lines

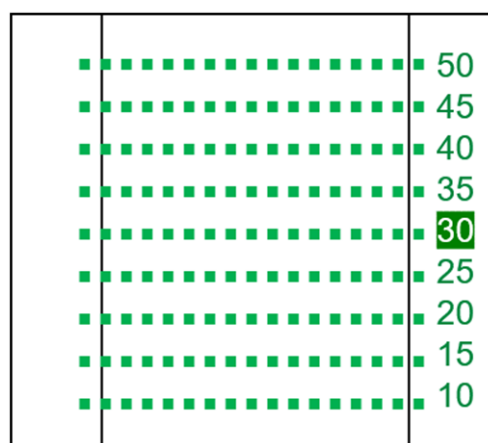
(1) For CL4416R and CL4416R1

Procedure

1. Select [Puncture] from the function menu to display the puncture guide line.
2. Use the [Puncture Disp. Pattern] multi rotary encoder to switch the puncture guide line display pattern.
 → The number of puncture guide lines changes.



Example: When the display pattern is "Single"



Example: When the display pattern is "Multi"

3. Use the [Puncture Angle Select] multi rotary encoder to change the active puncture guide line.

3.12 Needle Emphasis

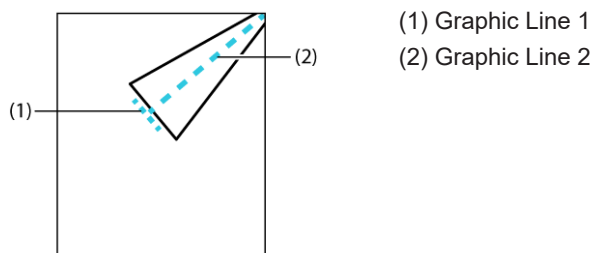
This function improves the visibility of the puncture needle echo.

NOTE: This function is not available in DFI mode.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".
If necessary, assign the following to a direct switch, custom switch, or function menu.

- [Needle Emphasis]
- [Angle Select (NE)]
- [Angle Reverse (NE)]
- [Puncture Link (NE)]
- [Emphasis Level (NE)]



NOTE: Graphic Line1 and Graphic Line2 are displayed only when the linear probe is used.



CAUTION

- **It is recommended that the puncture needle be used on the solid lines in the above figure.**
When the puncture needle is inserted from Graphic Line 1, Needle Emphasis results cannot be obtained.
- **Make sure you do not confuse this with the puncture needle echo.**
Body tissue might appear highlighted in parallel with Graphic Line 2.
- **Note that Graphic Line 2 differs from the puncture guide line.**

Procedure

1. Press the [B] key.
→ This switches to a B mode image in the single-screen view.
2. Select [Puncture] from the function menu.
→ Puncture guide lines are displayed.
3. Select [Needle Emphasis] on the touch panel.
→ The puncture needle echo is enhanced, and the visibility of the needle is improved.
A Graphic Line (pale blue dotted line) appears when the linear probe is used.
The closer the puncturing needle insertion angle is to Graphic Line 2, the more the puncture needle echo visibility is improved.

3.12.1 Displaying Graphic Line 1 perpendicular to the puncture guide lines

Link [Puncture Guide Line] and [Needle Emphasis] to display Graphic Line 1 perpendicular to the puncture guide lines.

NOTE: Only a linear probe is supported.

Procedure

1. Select [Puncture Link (NE)] on the touch panel, and set it to On.
2. Select [Puncture] from the function menu.
 - Graphic Line 1 is displayed perpendicular to the puncture guide lines within the available range.

3.12.2 Adjusting the angle of Graphic Line 2

NOTE: Only a linear probe is supported.

Procedure

1. On the touch panel, use the multi rotary encoder for [Angle Select (NE)] to adjust the angle.

NOTE: The maximum angle value varies depending on the probe.

3.12.3 Reversing the angle of Graphic Line 2

NOTE: Only a linear probe is supported.

Procedure

1. Select [Angle Reverse (NE)] on the touch panel.

3.12.4 Changing the level of enhancement

You can adjust the level of enhancement in order to improve visibility.

NOTE: Only a convex probe is supported.

Procedure

1. On the touch panel, use the multi rotary encoder for [Emphasis Level (NE)] to change the level of enhancement.

3.13 Physiological Signals

Attach the ECG cable connected to the main unit to the patient, to display physiological signals.

NOTE: The optional product PEU-LISENDO880 is required.

NOTE: Physiological signals are not displayed in DFI mode.

The system can display the following physiological signals.

- ECG (Electrocardiogram)
- PCG (Phonocardiogram)
- Pulse (Pulse wave)
- Resp (Breathing)

3.13.1 Displaying physiological signals

(1) ECG waveform

Prior confirmation

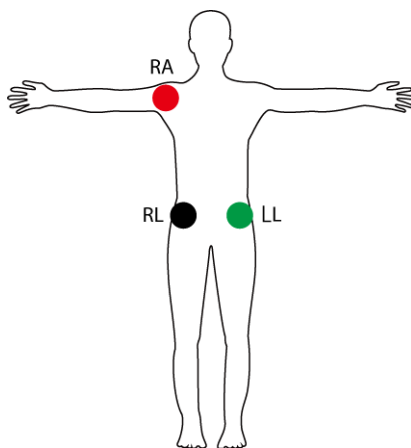
Assign [ECG Lead] to the function menu. You can select the ECG leads method in [ECG Lead].

You can also set this by using ECG Lead in Physiology on the General tab of the preset ([Preset Setup] > [Application] > [Edit Data] > [General]).

Procedure

1. Firmly connect the ECG cable to an ECG connector.
2. Attach the electrodes to the patient.

The optimal ECG electrode attachment method for detecting heart rate is II leads.



RA (Red) = Right Arm
RL (Black) = Right Leg
LL (Green) = Left Leg

ECG lead	RA	RL	LL
I	-	+	Ground
II	-	Ground	+
III	Ground	-	+

3. On the Physio tab, set [ECG Display] to On.

→ The ECG waveform is displayed.

When the ECG waveform is displayed, the system detects the R wave and calculates the heart-rate number.

The heart rate is displayed on the screen as "HR 120". If "HR****" is displayed, this indicates a value outside the display range (HR 30 to HR 500).

If the ECG R is not detected for more than 5 seconds, the following message will flash on the screen: "Detection error: Cannot detect ECG R-wave." Make sure that the ECG electrodes are connected correctly to the patient.

4. Use the Physio tab to adjust the ECG waveform.
 - Adjusting sensitivity using [ECG Sensitivity].
 - Automatically adjust the sensitivity to match the display amplitude by using [ECG Auto Sensitivity].
 - Configure to remove body movement with [ECG Filter].
 - Move the display position of the ECG waveform vertically with [ECG Position].
 - Invert the display of the ECG waveform with [Invert ECG Display].

(2) Display the ECG waveform on an ECG monitor (DC IN)

Procedure

- Select [ECG DC IN] for ECG Display Select on the General tab in the preset ([Preset Setup] > [Application] > [Edit Data]).

(3) Change the sweep speed of vital signs on tomographic images.

Prior confirmation

Assign [Sweep Speed (B)] to the function menu.

Procedure

- Use [Sweep Speed (B)] in the function menu to change the sweep speed.

Reference information

10.7.4 Assigning functions on page 343

(4) PCG, Pulse, and Resp waveforms

Procedure

1. Turn On the menu of waveforms to display from the Physio tab.
 - PCG sets [PCG Display] to On.
 - Pulse sets [Pulse Display] to On.
 - Resp sets [Resp Display] to On.
2. Use the Physio tab to adjust the waveform.
Adjusting sensitivity
 - Adjust PCG by using [PCG Sensitivity].
 - Adjust pulse by using [Pulse Sensitivity].
 - Adjust Resp by using [Resp Sensitivity].

3.13.2 Detecting the R-R interval

Sectors with equal and continuous intervals between one ECG waveform R-wave and the next are detected from Cine Memory. Measurements can be made on detected images.

Prior confirmation

Select [ECG Display] from the Physio tab to display physiological signals (ECG). Make sure the R-wave is correctly detected.

To exclude (from the detection results) the heartbeats for which the R-R interval is outside the range from 0.6 to 1 second in the target sectors, perform either of the following operations:

- Set Tachy/Brady Filter on the General tab of the preset ([Preset Setup] > [Application] > [Edit Data] > [General]) to On.
- Set [Tachy/Brady Filter] on the touch panel to On.

Procedure

1. Press the [B] key to switch to the B mode image (single-screen view).
Dual-screen view
In B/M modes, activate M mode (FAM mode is not available).
In B/D modes, activate D mode.
2. After you have captured the image with the required quality, press the [Freeze] key.
3. On the Physio tab, set [R-R Detection] to On.
→ The detected sector changes color. Information is also displayed about the detected sector.
4. Return cine memory back to the detected sector.
 - Use the trackball to search.
5. To end R-R detection, set [R-R Detection] to Off on the Physio tab.

3.13.3 Displaying a stable heartbeat

This function judges a location where the heart rate is stable.

The heartbeat is judged to be stable if all of the following conditions are satisfied.

- The result of comparison between the average heart rate over four heartbeats and the most recent heart rate is within the allowable range.
- The result of comparison between the average heart rate over four heartbeats and a previous heart rate is within the allowable range.
- The rate of change between two consecutive heartbeats is within the allowable range.

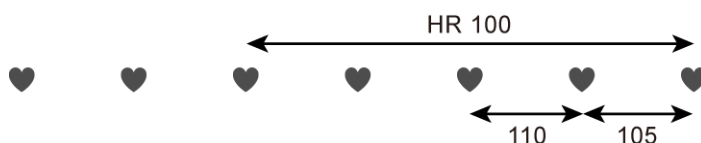
Procedure

1. On the Physio tab, set [HR Stability Display] to On.
2. Set the allowable ranges.

- [HR Stability Display (Ave.)]
Set the allowable range for comparison with the average heart rate over four recent heartbeats.
 - [HR Stability Display (Conti.)]
Set the allowable range for the rate of change between two consecutive heartbeats.
- As long as the latest heart rate is within the above allowable range, the it is stable.
The heart rate in the upper right of the screen is highlighted.

Judgment Example

When [HR Stability Display (Ave.)] is 10% and [HR Stability Display (Conti.)] is 20%
The average heart rate for the previous four heartbeats is 100, the heart rate for the previous heartbeat is 110, and the heart rate for the latest heartbeat is 105.



In this case, the allowable range for the previous four heartbeats is 90 to 110. Therefore, the previous heartbeat and latest heartbeat are also within the allowable range.
In this case, the allowable range for two consecutive heartbeats is 88 to 132. Therefore, the latest heartbeat is within the allowable range.
The latest heartbeat must be stable to fulfill the two conditions.

3.13.4 Auto-detection of the end diastole and end systole

Read the ECG waveform and detect the end diastole (ED) and end systole (ES) images from cine memory.
Measurements can be made on detected images. The loop for continuous playback is always ED-ES.

Prior confirmation

On the Cine tab of the preset ([Preset Setup] > [Region] > [General]), set Cine Memory Division to Off.
Select [ECG Display] from the Physio tab to display physiological signals (ECG). Make sure the R-wave is correctly detected.

Procedure

1. Display a tomographic image.
NOTE: Auto-detection of ED and ES is not available in the quad-screen view or with sweep images.
2. Press the [Freeze] key to freeze the image.
3. Press the [Cine Search] key.
When the trackball function in the freeze mode is set to [Search]
Go to step 4 without pressing the [Cine Search] key.

[Search] can be set using Trackball Priority When Frozen (Color On) or Trackball Priority When Frozen (Color Off) in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).

4. Press the [UNDO] key.
 - The ED & ES in the heartbeat that includes the current frames are detected.
A time phase bar (ED: pink, ES: orange) appears at each position of the ECG waveform.
In the single-screen view, an ED image is displayed. In the dual-screen view, the ED image appears on the left and the ES image appears on the right.
NOTE: If detection fails, the following message appears: "Detection error: Cannot detect end diastole or end systole."
5. To end automatic ED and ES detection, press the [Enter] key.
 - The time phase bar(s) on the ECG disappear and the single-screen view of the active side is displayed.

(1) Switching between ED and ES screens

Procedure

- In the single-screen view, press the [UNDO] key or the [Single] key.
 - This toggles the ED & ES screens.
- In the dual-screen view, press the [UNDO] key or the [Dual] key.
 - The active screens are switched.

(2) Changing the heartbeat for detecting ED & ES

Procedure

- Press the [L] key to shift one heartbeat back for detecting ED and ES.
- Press the [R] key to shift one heartbeat forward for detecting ED and ES.

(3) Correcting an auto-detected ED or ES

You can move the frame from which ED or ES was auto-detected.

NOTE: If the heartbeat is changed by using the [L] or [R] keys, or if automatic ED or ES detection is rerun, the system will reset these features in automatic-detection ED and ES frames.

Prior confirmation

Display the image for which you wish to adjust ED or ES, or activate the image.

Procedure

- Move the trackball to the right or left to make adjustments.
- Turn the [Pointer] rotary encoder to make adjustments.
- Turn the [Freeze] rotary encoder to make adjustments.

NOTE: Before performing this procedure, set Freeze Encoder on Frozen on the Operation1 tab of the preset ([Preset Setup] > [Region] > [General]) to [Cine Search].

Reference information

3.14.3 *Playing back cine memory images* on page 131

3.14 Cine memory

Plays the images up to immediately before freezing.

Cine memory temporarily stores image information. Use this memory to playback images and to display images manually (Cine memory search).

- Video of the image in the specified mode is recorded continuously and seamlessly. During playback you can play back all recorded images in a continuous loop, advance frame-by-frame, or rewind frame-by-frame.
- If the ECG is displayed, the ECG waveform is recorded along with the video.

Recording to cine memory

Images rendered on the screen are always recorded in cine memory if not specified otherwise. When conditions such as the display depth or display angle are switched, information in cine memory is temporarily cleared and image recording begins again. When cine memory is exceeded, the oldest images are deleted first.

Image recording stops when freeze is used. When the image is unfrozen, the information in cine memory is cleared.

NOTE: At the time [Cine Reset] is selected, information in the cine memory is deleted. You can delete information in the cine memory any time.

NOTE: If you set Cine Memory Division to Off and Keep Display after 2B mapping to On, dual screen display is maintained if you switch the display mode to dual screen display and unfreeze the image after freezing the image in single screen display.

Number of recorded images

The number of frames that can be recorded in cine memory differs according to probe, mode, and display depth.

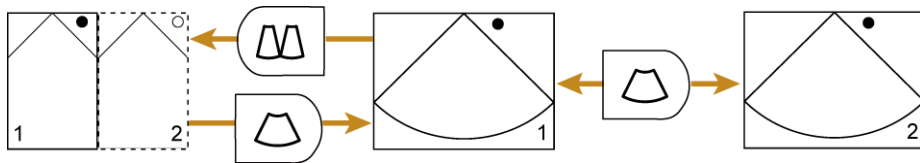
3.14.1 Making a frozen image active

Prior confirmation

If necessary, assign [Quad] to a direct or custom switch.

Procedure

- In the single-screen view, press the [Single] key.
 - When the display is switched from the dual-screen view or quad-screen view to the single-screen view, the display switches to the active image.



Switching of Cine Memory when going from the dual-screen mode to the single-screen view
The image inside the solid lines is the active image

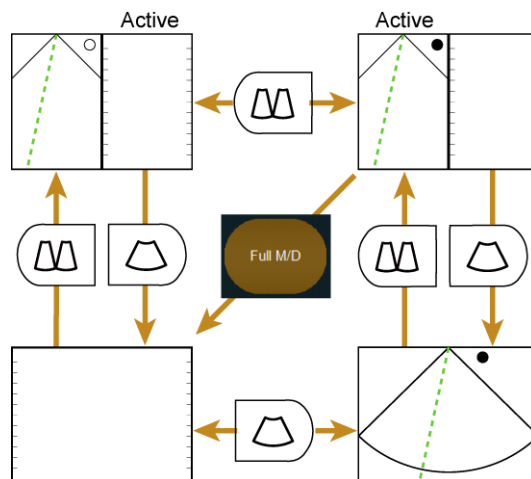
NOTE: You cannot switch the Cine Memory when Cine Memory Division is turned Off.

- In the dual-screen view, press the [Dual] key.
→ The active screens are switched while the dual-screen view remains.
- In the quad-screen view, select the direct switch [Quad].
→ The active screens are switched while still in the quad-screen view.

3.14.2 Switching the dual-screen view for tomographic and sweep images (M mode or D mode) after the images are frozen

Procedure

- In the dual-screen view, press the [Dual] key.
- In the single-screen view, press the [Single] key.
- Switch the screens.
 - Press the [Single] key to switch the active mode to single-screen view.
 - Even in the single-screen view, press the [Single] key to switch to the other screen.
 - Select [Full M/D] to switch to the single-screen view of the sweep image.
 - Press the [Dual] key to revert from the single-screen view to the dual-screen view.



3.14.3 Playing back cine memory images

Use the steps below to play back images after they have been frozen.

Moving tomographic image frames back and forward in cine memory image play is called "searching."

In sweep images such as M mode and D mode images, playback in the forward or reverse directions is called "searching".

(1) Using the trackball to search or scroll

Procedure

1. Press the [Freeze] key to freeze the image.
2. Press the [Cine Search] key to turn it On.
When the trackball function in the freeze mode is set to [Search]
Go to step 3 without pressing the [Cine Search] key.
[Search] can be set using Trackball Priority When Frozen (Color On) or Trackball Priority When Frozen (Color Off) in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).
3. Roll the trackball to the right or left.
→ In the dual-screen view, the active screen is used for searching or scrolling.

(2) Using the [Freeze] rotary encoder for searching and scrolling

Prior confirmation

On the Operation1 tab of the preset ([Preset Setup] > [Region] > [General]), set Freeze Encoder on Frozen to Cine Search.

Procedure

1. Press the [Freeze] key to freeze the image.
2. Turn the [Freeze] rotary encoder.
→ In the dual-screen view, the active screen is used for searching or scrolling.

(3) Using the [Pointer] rotary encoder for searching and scrolling

Procedure

1. Press the [Freeze] key to freeze the image.
2. Press the [Cine Search] key to turn it On.
When the trackball function in the freeze mode is set to [Search]
Go to step 3 without pressing the [Cine Search] key.
[Search] can be set using Trackball Priority When Frozen (Color On) or Trackball Priority When Frozen (Color Off) in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).
3. Turn the [Pointer] rotary encoder.
→ In the dual-screen view, the non-active image is used for searching or scrolling.

3.14.4 Continuously playing back tomographic images

Use the steps below to continuously play back tomographic images stored in cine memory.

Prior confirmation

If necessary, assign the following function:

- Assign [Playback] to a direct switch, custom switch, or function menu.
- Assign [Loop Method] to the function menu.

Procedure

1. Press the [Freeze] key to freeze the image.
2. Press the [Cine Search] key to turn it On.
When the trackball function in the freeze mode is set to [Search]
Go to step 3 without pressing the [Cine Search] key.
[Search] can be set using Trackball Priority When Frozen (Color On) or Trackball Priority When Frozen (Color Off) in the Operation1 tab in the preset ([Preset Setup] > [Region] > [General]).
3. Start continuous play.
 - Roll the trackball up.

To change the playback speed:
Roll the trackball down to decrease and up to increase playback speed during continuous playback.
Pausing playback
Roll the trackball left or right.
 - Select [Playback].

Pausing playback
Select [Playback] and turn it Off.

(1) Continuously playing within a chosen interval

Procedure

1. Press the [Freeze] key to freeze the image.
2. Press the [Cine Search] key to turn it On.
3. Set the playback range.
 - a. Use the trackball to display the playback start frame or playback end frame.
 - b. Press the [Enter] key.
 - c. Use the trackball to display the playback start frame or playback end frame.
 - d. Press the [Enter] key.

NOTE: The frame with a low number displayed in step a and c is the beginning frame, and the frame with a high number is the ending frame.
4. Start continuous play.
 - Roll the trackball up.

To change the playback speed:

Roll the trackball down to decrease and up to increase playback speed during continuous playback.

Pausing playback

Roll the trackball left or right.

- Select [Playback].

Pausing playback

Select [Playback] and turn it Off.

(2) Changing the Playback Range during Playback

Prior confirmation

Select [ECG Display] from the Physio tab to display physiological signals (ECG).

(a) Setting a playback range for each heartbeat

Prior confirmation

Set the preset ([Preset Setup] > [Filing] > [Loop Method]) to [Beat].

Move the playback range while keeping the setting of [ECG Cycle] unchanged.

To change the playback range, change the setting of [ECG Cycle].

Procedure

- Press the [L] key to move the playback range to the heartbeat on the left side.
- Press the [R] key to move the playback range to the heartbeat on the right side.

(b) Setting a playback range for each frame

Prior confirmation

Set the preset ([Preset Setup] > [Filing] > [Loop Method]) to [Frame].

Procedure

- Press the [L] key to turn the [Pointer] rotary encoder.
→ Adjust the start frame for playback.
- Press the [R] key to turn the [Pointer] rotary encoder.
→ Adjust the end frame for playback.

(3) Continuously playing back a tomographic image in the dual-screen view or quad-screen view

Prior confirmation

Assign [Playback Mode] to the function menu.

In tomographic images in the dual-screen view or quad-screen view, all images are synchronized for continuous playback.

Procedure

1. Press the [Freeze] key to freeze the image.
2. Press the [Cine Search] key to turn it On.
3. Set the playback range.
 - a. Use the trackball to display the ending frame. Then press the [Enter] key.
 - b. Use the trackball to display the start frame. Then press the [Enter] key.
4. Select [Playback Mode] in the function menu to set synchronized playback.
 - [Short]
Plays back in line with the image with the fewest frames. Playback of images with a large number of frames will stop when playback of images with a small number of frames stops.
 - [Long]
Plays back in line with the image with the most frames. Playback of images with the smaller number of frames pauses and stands by for playback of images with the larger number of frames to finish.
 - [Align]
Playback is based on the playback time of the image with the largest number of frames and playback speed of other images is adjusted to this standard and synchronized so that playback of all images ends at the same time.
 - [Free Run]
Plays each image without synchronizing them.
5. Start continuous play.
 - Roll the trackball up.

To change the playback speed:

Roll the trackball down to decrease and up to increase playback speed during continuous playback.

Pausing playback

Roll the trackball left or right.

- Select [Playback].

Pausing playback

Select [Playback] and turn it Off.

Reference information

10.7.4 Assigning functions on page 343

Outputting images

- 4.1 Outputting images
- 4.2 Saving still images
- 4.3 Saving video
- 4.4 Recording to an HD Video Recorder
- 4.5 Printing images

4.1 Outputting images

Outputs displayed data such as images and measurement results.

Saves and prints displayed images and measurement results during examination.

You can save still images (in RGB format) and print them while videos are being saved.

For information on the list of saved data, and how to play back, print, and back up the data, see "Review" in this manual.

Images can be stored on any of the media listed below.

- System hard disk
- USB-connected media
- CD-R Buffer
- DVD-R Buffer
- DVD (DVD-RAM, CD-R)
- HD Video Recorder
- Network

NOTE: When multiple USB-connected media devices are connected to the system, select the device to which images are to be output. Use [USB Media] from the function menu to make the selection.

Images can also be printed on either of the printers listed below.

- Local printer
- DICOM printer

4.1.1 Important points about image recording and storage media

Commercially available DVD drives are not supported to ensure that the entire system is compliant with electrical safety standard IEC 60601-1-1. Use a DVD drive recommended for the system.

Please note the following when using the following storage or recording media.

- USB-connected media
 - Use a commercially available USB mass storage class memory device equipped with an access light. Memory devices equipped with encryption or authentication functions cannot be used.
 - You might be unable to connect some devices because of their physical dimensions. Make sure that the device can be connected to the USB connectors of the system.
 - Remove any straps that may be attached to the USB memory device. A strap might become tangled with the probe cable and hamper system operation.
 - Do not remove USB-connected media while the access light on that media is blinking (indicating data is being transmitted). The data being recorded may be damaged.
- Printers

- The position of the monitor and control panel may make it difficult to remove printed sheets. Reposition the monitor and control panel if this is the case.
- DVD drives (DVD-RAM, CD-R, DVD-R)
 - To connect a DVD drive, connect the DVD drive to the system, and then start the system.
 - If you start the system while a disk is in the DVD drive, the system might not recognize the drive. Eject the disk before turning off the system.
 - The position of the monitor and control panel may make it difficult to open and close the DVD tray. Reposition the monitor and control panel if this is the case.
 - Shaking the DVD drive while a disk is inserted can damage the disk. Eject the disk before moving the device.
 - DVD-RAM, CD-R, and DVD-R disks can be used for recording and retrieving data. Use commercially available media that complies with DVD-RAM V2.1 standard that supports DVD-RAM recording. Media with a capacity of 4.7 GB (single-sided) or 9.4 GB (double-sided) (without cartridge) can be used for recording and reading.
 - CD-R Buffer
This is the location where information is saved for CD-R writing on the system. To write to a CD-R disk from the CD-R Buffer, press [Burning CD] in the search screen or Tile view.
 - DVD-R Buffer
This is the location where information is stored on the system before being written to DVD-R. To write to a DVD-R disk from the DVD-R Buffer, press [Burning DVD] in the Find screen or Tile view.
- Network server
 - Images are sent in DICOM format. No other formats can be used for sending.

4.2 Saving still images

Use this function to save an image created during an examination and a displayed screen as a still image. If images on the system hard disk or DICOM images on media are played back and saved in DICOM format, playback images are saved as screen captures.

Prior confirmation

Enter the patient ID. You cannot save an image without entering the patient ID.

Procedure

1. Press the [Freeze] key to freeze the image.
 2. If necessary, change the storage location and format.
 3. Press the [Store] key.
- Thumbnails of saved images are displayed in the thumbnail area.

4.2.1 Changing the storage format and destination of still images

Use this function to change the storage format and/or storage area of still images.

Procedure

- To make changes, use Store Media on the Common1 tab in the preset ([Preset Setup] > [Filing]).

Storage Media

Options	Storage Media
HDD	System hard disk
USB	USB-connected media
CD-R Buffer	CD-R buffer
DVD	DVD drive
NET(DICOM)	When transferring to a network ^{*1} NOTE: Make sure in advance that the destination server is selected. If no destination server is selected, data will not be sent.

^{*1}.

Network authentication may be required when sending.

- Changing the storage format.

When saving still images to the system (When Store Media is set to [HDD])

Saves still images in the format selected with Data Format (Still) on the Common1 tab in the preset ([Preset Setup] > [Filing]).

Options	Data type
RGB	Data format used for the system display. If the image is to be used for analysis, measurement, or adjustment after it is saved, save it again in Raw format.
Raw	Adds a private format ^{*1} to the RGB format. If the image cannot be saved in Raw format, a message appears and then it is saved in RGB format.

^{*1}.

Information used for analysis in the system.

When saving still images outside the system (When Store Media is not set to [HDD])

Saves still images in the format selected with Format Type (Still) on the Common1 tab in the preset ([Preset Setup] > [Filing]).

Options	Storage format
DICOM	DICOM format ^{*1}
JPEG	JPEG format
BMP	Bitmap format
TIFF	TIFF format

^{*1}.

You can change the data type by using Data Format (Still).

4.3 Saving video

Use this function to save video during scanning.

You can save a video by using the function menus and Acquisition Mode on the Common1 tab in the preset ([Preset Setup] > [Filing]), or Manual Raw Store.

The following three methods are available for setting in Acquisition Mode.

- [Pre (Time)], [Pre (ECG)]
Press the [Store] key, and then save the video for a set time interval or set number of heartbeats prior to an event.
- [Post (Time)], [Post (ECG)]
Press the [Store] key, and then save the video for a set time interval or set number of heartbeats.
- [Manual]
Press the [Store] key to start saving the video and then press the [Store] key again to stop.

NOTE: For details about Manual Raw Store, see "Saving a video in Raw format: Manual Raw Store" in this manual.

NOTE: The saving processing starts if you select [Restart Store] on the touch panel while video images are being saved or being displayed in real time.

You can save a video in Raw format or Video Clip format.

You can save it simultaneously in both Raw format and Video Clip format (Raw&V.C.). Use the function menu or Data Format (Movie) in the preset ([Preset Setup] > [Filing]) for the video storage format. In B/M, M, B/PW, PW, B/CW, and CW mode, Raw format images cannot be saved to DICOM.

NOTE: In Manual Raw Store, videos are saved in Raw format regardless of the settings in Data Format (Movie).

Storage formats and related properties

Storage format	Raw	Video Clip
Storage Media	System hard disk	System hard disk USB-connected media CD-R Buffer DVD Network
Savable display modes	Tomographic image in the single-screen view (B mode, CF mode) Active screen of a tomographic image (B mode, CF mode) in the dual-screen view Color Doppler mode image screen in Dual CF DFI image screen in Dual DFI D.S.D mode is not available.	Possible in all modes.

The Acquisition progress bar and the cine memory area bar are displayed during the saving of a video in Raw format.

The Acquisition progress bar is displayed during the saving of a video in Video Clip format.

However, if the video storage method is set to [Pre Time] or [Pre ECG], the Acquisition progress bar and cine memory area bar are not displayed.

Masking patient information

When saving a video to anything other than the system hard disk, patient information can be masked.

When Teaching File (Video Clip) or Teaching File (Net) on the Teaching File tab in the preset ([Preset Setup] > [Filing]) is set to On, the patient ID and name are masked in the saved videos. Turn the applicable items to On to mask the patient's age (Age), gender (Gender) and hospital name (Hosp. & Sonographer Name).

Reference information

10.6.1 Editing filing parameters on page 336

10.7.4 Assigning functions on page 343

4.3.1 Saving a video for a preset time interval or set number of heartbeats: Post Time/Post ECG

Prior confirmation

Assign [Acquisition Mode] to the function menu and set it to either [Post (Time)] or [Post (ECG)].

- Assign [Time Cycle] to the function menu for [Post (Time)] and select the time to save.
- Assign [ECG Cycle] to the function menu for [Post (ECG)] and select the heart rate to save.

NOTE: To check the target range before saving a video, turn On Auto Playback on the Common2 tab in the preset ([Preset Setup] > [Filing]).

Procedure

1. Press the [Store] key to save the image as a real-time image.

If Auto Playback is On

→ The target range is played back as a loop.

A video for the time interval or number of heartbeats set using [Time Cycle] or [ECG Cycle] is saved when the [Store] key is pressed.

NOTE: The saving processing starts if you press the [R] key while video images are being saved or if you select [Restart Store] on the touch panel.

4.3.2 Saving a video for a set time interval or set number of heartbeats prior to an event: Pre Time/Pre ECG

Prior confirmation

Assign [Acquisition Mode] to the function menu and set [Pre (Time)] or [Pre (ECG)].

- Assign [Time Cycle] to the function menu for [Pre (Time)] and select the time to save.

- Assign [ECG Cycle] to the function menu for [Pre (ECG)] and select the heart rate to save.

NOTE: To check the target range before saving a video, turn On Auto Playback on the Common2 tab in the preset ([Preset Setup] > [Filing]).

Procedure

1. Press the [Store] key to save the image as a real-time image.
If Auto Playback is On
 - The target range is played back as a loop.
A video for the time interval or number of heartbeats set using [Time Cycle] or [ECG Cycle] is saved when the [Store] key is pressed.

4.3.3 Storing a video for any period of time: Manual

Press the [Store] key to start saving the video and then press the [Store] key again to stop.

Prior confirmation

Assign [Acquisition Mode] to the function menu and specify [Manual].

Procedure

1. Press the [Store] key to save the image as a real-time image.
→ Saving starts.
2. Press the [Store] key again to stop saving.
→ Saving ends.

Reference information

10.7.4 *Assigning functions* on page 343

(1) Saving data in the same range as a saved video in Video Clip format

Prior confirmation

Make the following settings.

- Assign [Acquisition Mode] to the function menu and set it to [Manual].
- Assign [Data Format (Movie)] to the function menu and set it to [VideoClip].
- Set Video Clip Auto Stop to On in Video Clip Setting of the Common1 tab in the preset ([Preset Setup] > [Filing]).

Procedure

1. Press the [Store] key to save the image as a real-time image.
→ The video images are saved in Video Clip format.
2. Press the [Store] key to stop saving.

- Saving ends and the image is frozen.
- 3. Play the loop.
 - a. Turn on the [Cine Search] Key.
 - b. Roll the trackball upward. Alternatively, set [Playback] to On.
- 4. Press the [Store] key.
 - The loop playback range (same range as a video saved in Video Clip format) is saved in Raw format.
 - NOTE: If Video Clip Auto Stop is On, you cannot select [Raw&V.C.] from [Data Format (Movie)].

Reference information

10.7.4 *Assigning functions* on page 343

4.3.4 Saving a video in Raw format: Manual Raw Store

Videos are saved in Raw format regardless of the Data Format (Movie) settings in the preset ([Preset Setup] > [Filing]).

It is also possible to simultaneously save necessary portions of a video in Video Clip format.

NOTE: While saving a video in Video Clip format, select [Manual Raw Store] on the touch screen to begin saving the video in Raw format. In this case, a video in Video Clip format is instantly stopped and saved when [Manual Raw Store] is pressed.

NOTE: Auto Playback is turned to Off.

NOTE: If saving of a video in Video Clip format begins while a video in Raw format is being saved, Video Clip Auto Stop is turned Off.

Prior confirmation

- Assign [Manual Raw Store] to a direct switch.
- To save a video both in Video Clip format and in Raw format, set Data Format (Movie) to [Video Clip] in the preset ([Preset Setup] > [Filing]).

Procedure

1. In a real-time image, select [Manual Raw Store] on the touch panel.
 - Saving of a video in Raw format begins.
2. Press the [Store] key to save a video in Video Clip format at the same time as a video in Raw format is being saved.
 - Saving of a video in Video Clip format begins.
 - NOTE: Select [Store Media] on the touch panel for the storage location.
3. To end the saving of a video in Video Clip format, press the [Store] key again.
4. To end the saving of a video in Raw format, select [Manual Raw Store] on the touch panel again.

(1) Messages

Messages	Status or cause
Auto Playback is off.	The Auto Playback function turned off.
The Cine Memory is cleared. Video Clip Auto Stop is off.	The Video Clip Auto Stop function turned Off.
Video Clip Auto Stop is off.	The Video Clip Auto Stop function turned Off.

4.3.5 Saving a video at a specified range after a freeze

This function saves tomographic images in the loop playback range as a video during a freeze.

In a tomographic image in the single-screen view (B mode, CF mode, or DFI mode), select the range of the images captured in cine memory and save it as a video in Raw format.

NOTE: For Dual CF mode or Dual DFI mode, you can save a video in Video Clip format.

Procedure

1. Press the [Freeze] key to freeze the image.
2. Select the loop sector and save.
 - a. Press the [Cine Search] key.
 - b. Use the trackball to display the start frame. Then press the [Enter] key.
 - c. Display the end frame. Then press the [Enter] key.
→ The selected sectors are saved.
3. Roll the trackball upward. Alternatively, set [Playback] to On.
→ Start continuous play.
4. Select the [Store] key.
→ The sectors selected in step 2 are saved.

4.4 Recording to an HD Video Recorder

The following HD Video Recorders can be connected to the system.

For details about disks that can be used for recording or playback, disk handling precautions, storage, and cleaning, see the documentation for the HD Video Recorder.

HD Video Recorders that can be connected to the system

Recording Device Model	DVD drive	Image format	Other
HVO-550MD /FHD (SONY)	Available	MP4, AVCHD	MP4: Can be played on a computer. AVCHD: Can be played on AVCHD compatible DVD players available on the market. Can be recorded or copied to a DVD-R disk.

CAUTION



Do not repair, disassemble, or modify the HD Video Recorder.

When the HD Video Recorder is delivered, our service staff will perform the installation.

Ask us to handle any repairs.



See the documentation included with the HD Video Recorder in the following situations.

- Finalizing errors
 - Unexpected power outage, etc., during use
-
- To play the recorded DVD-R in a DVD player or other DVD compatible device, the disk must be finalized.
 - We are not responsible for data loss due to sudden accidents, malfunctions, or misoperation. Be sure to back up important data.
 - Make sure the access lamp of the HD Video Recorder is off before you shut down the system.
If you shut down the system while the access lamp is on or blinking, the HD Video Recorder, drive, disk, or disk contents might be damaged.

4.4.1 Recording to an HD Video Recorder

Record to an HD Video Recorder (HDD).

Prior confirmation

Enter the patient information (patient ID and name).

To record simultaneously to a DVD-R as well, check the external storage settings in the storage settings.

NOTE: For information on operations from the HD Video Recorder, see the documentation for the HD Video Recorder.

Procedure

1. Make the following preparations for simultaneous recording to a DVD-R.
 - a. Select [EXT] on the touch panel.
 - The Recorder Control menu is displayed on the touch panel.
 - b. Select [Eject&Finalize] on the touch panel and insert a DVD-R.
 - c. Select [EXT] on the touch panel.
 - The display switches from the HD Video Recorder display to the scanning screen.
2. Press the [REC] key while the scanning screen is displayed.
 - Recording starts.
Patient information, such as the patient ID, is sent to the HD Video Recorder when recording begins.

NOTE: Do not turn the power off during recording. Turning the power off may corrupt all files in the HD Video Recorder.

3. Press the [REC] key.

→ The recording is paused.

Chapter 1 is created as the name for the recorded sector.

Pressing the [REC] key again restarts recording.

Chapter numbers increase as recordings are paused and restarted. Chapter numbers increase until patient data is changed. When patient data is changed, count-up resumes from Chapter 1.

These chapter numbers are used as an index for selecting images to playback.

To remove the DVD-R used for simultaneous recording, select [Eject&Finalize] on the touch panel.

At such time, a dialog box displays the following: "Do you want to finalize your DVD-R before ejecting?" To finalize the disk, select [Yes.].

4.4.2 Playing back images from the HDD built into the HD Video Recorder

Procedure

1. Select [EXT] on the touch panel while on the scanning screen.

→ The Recorder Control menu is displayed on the touch panel.

2. Select an image from the screen listing the recordings.

→ The image is played back.

If the list of recordings does not appear, select [List] on the touch panel.

(1) Touch panel menu for playback

Menu item	Description
EXT	Switches between the HD Video Recorder display and the scanning screen. Displays a list of recordings on the HD Video Recorder screen. Nothing is displayed on the screen if an HD Video Recorder is not connected.
Play	Plays the images.
Stop	Stops playback.
Pause	Pauses playback.
REW	Rewinds the playback image.
FF	The playback image is fast-forwarded.
Frame Back	Displays the previous frame (while paused).
Frame Forward	Displays the next frame (while paused).
Play Speed	Changes the playback speed to [x1/16], [x1/8], [x1], [x2], [x4], or x20.
Eject&Finalize	Opens and closes the disk tray (only HVO-550MD /FHD). If the DVD-R is not finalized, it is finalized and ejected.
Patient Search	Locates patient IDs.
Chapter Search	Skips to the start of each chapter.

Menu item	Description
List	Opens the list of recordings.
Audio Volume	Changes the volume setting. [0] is mute.

4.4.3 Copying, deleting, and protecting data on the HDD built into the HD Video Recorder

Procedure

1. Select [EXT] on the touch panel while on the scanning screen.
 - The list of recordings appears.
If the list of recordings does not appear, select [List] on the touch panel.
2. Select the desired operation.
 - a. Select the [Play] button.
 - The function screen appears.
 - b. Select the [Save to] button, [Delete] button, or [Protect] button.
3. Select images.
To select all images, select the [Select All] button.
To clear all selected images, select the [Clear All] button.
4. Select the [Execute] button.
 - The selected process is performed.
When the [Save to] button is selected, a dialog box appears for specifying the external storage location.
Select the storage location and select the [Execute] button to copy the selected image to the designated storage location.
5. Once processing is complete, select [EXT] on the touch panel.
To take out a DVD-R
Select [Eject&Finalize] on the touch panel.
At such time, a dialog box displays the following: "Do you want to finalize your DVD-R before ejecting?" To finalize the disk, select [Yes.].

4.5 Printing images

Perform the following steps to print displayed images on a local printer or DICOM printer.

Prior confirmation

Assign the recording medium to Archive Group on the Archive tab in the preset ([Preset Setup] > [System Preset] > [Filing]).

NOTE: When [Snapshot(Color)] is assigned to Archive Group, only the image is magnified and printed in color.

Procedure

- Follow the steps below to print a frozen image.
 - a. Search and scroll to find a high-quality image.
 - b. Press the [Print] key.
 - The displayed screen is printed.
- Follow the steps below to print a real-time image.
 - a. Display a high quality real-time image.
 - b. Press the [Print] key.
 - The image shown when the key was pressed is printed.

Protocol Assistant

The Protocol Assistant allows you to perform examinations based on protocols registered in advance.

By performing examinations based on protocols, you can avoid forgetting to take measurements or save images.

In this chapter, the examination settings to be registered for a protocol are referred to as a "view".

NOTE: The optional product SOP-ARIETTA750-79 is required.

5.1 Performing an examination by using the Protocol Assistant

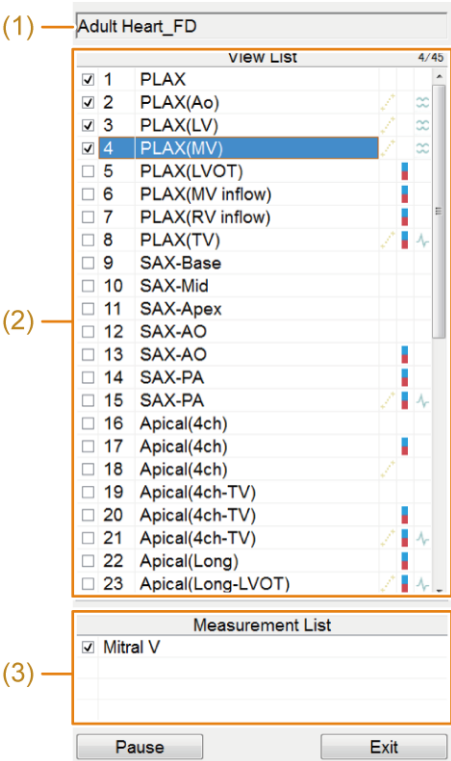
5.2 Creating and editing a protocol

5.3 Reference

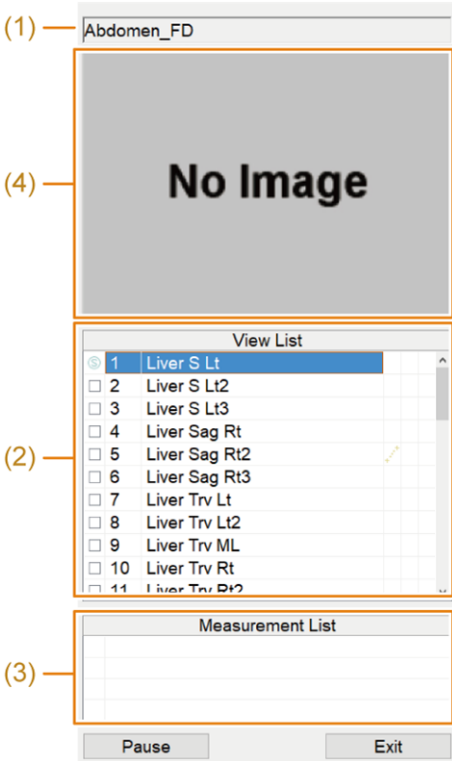
5.1 Performing an examination by using the Protocol Assistant

5.1.1 Screen display

The Assist Information area displays protocol information.

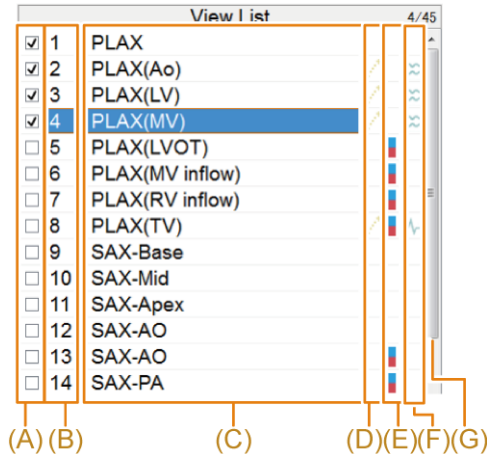


When a reference image is hidden



When a reference image is displayed

- (1) Protocol Name
- (2) View List



- (A) Progress of the views and the storage format of an image
Blank: Not performed, ☒: Performed, : Still image, : Video
- (B) View number
- (C) View name

(D) Measurement settings

Blank: No measurement registered, : Measurement registered

(E) Color Doppler settings

Blank: B mode image, : Color mode image, TDI mode image

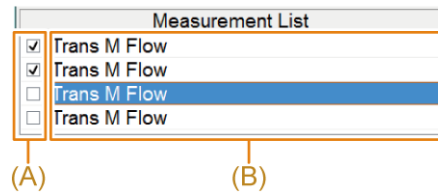
(F) Display modes

Blank: Tomographic image only, : PW mode or CW mode, : M mode, : Dual-screen view, : Quad-screen view

(G) Scroll bar

Scrolls the View List.

(3) Measurement List



(A) Progress of measurements

Blank: Not performed, ☒: Performed

(B) Measurements registered in the view

(4) Reference image area

For a View for which no reference images are registered, "No Image" is displayed.

5.1.2 Examination procedure

NOTE: If the system used to execute the protocol is different from the system that was used to create the protocol, when an examination is performed, items that were originally registered (in the system used to execute the protocol) might not be displayed, or different items might be displayed.

Prior confirmation

Assign the protocol to use to the touch panel with the preset ([Preset Setup] > [Input Device] > [(Application)] > [Protocol Start Menu]).

If necessary, set Measurement Trigger in the preset ([Preset Setup] > [Application] > [Protocol]) to [Freeze].

If necessary, set Next View Trigger in the preset ([Preset Setup] > [Application] > [Protocol]) to [Store].

NOTE: If Next View Trigger is set to [Store], after you press the [Store] key to save the image, ☒ is displayed in the view progress column, and you will be directed to the next view.

NOTE: If you set a Protocol in the ID window, start from step 3.

NOTE: When executing a protocol, pressing the [R] key takes you to the next view. Pressing the [L] key returns you to the previous view.

Procedure

1. Select the Protocol tab on the touch panel.

2. Select the protocol to use.

→ The image display switches based on the conditions set for the first view.

3. Display the desired image.

NOTE: Changing the display mode interrupts the protocol.

To resume the protocol, press the [Pointer] key to display the pointer and then select [Pause] in the Assist Information area. Alternatively, you can set [Pause Protocol] to Off from the Protocol tab on the touch panel.

4. Take measurements. Alternatively, record the image.

To take measurements:

- a. Press the [Freeze] key to freeze the image.

NOTE: If Measurement Trigger in the preset ([Preset Setup] > [Application] > [Protocol]) is set to [Freeze], the measurement that is registered in the view when the image is frozen is activated.

- b. Press the [Measurement] key.

→ The measurements registered in the view start.

- c. Take measurements.

NOTE: For details about measurements, see the separate manuals "Measurements 1", "Measurements 2", and "Measurements 3".

→ ☒ is displayed for the measurement progress column. When you save the image after measurement and unfreeze the image, you will be directed to the next view.

When the storage format for the image is a still image

- a. Press the [Freeze] key to freeze the image.

- b. Press the [Store] key to save the image.

→ ☒ is displayed in the view progress column.

- c. Press the [Freeze] key to unfreeze the image.

→ Proceed to the next view.

When the storage format for the image is a video

- a. Press the [Store] key to save the video.

NOTE: For details about how to save a video, see "Saving video" in this manual.

→ ☒ is displayed in the view progress column.

- b. If Freeze is not set to On, press the [Freeze] key to perform a freeze.

- c. Press the [Freeze] key to unfreeze the image.

→ Proceed to the next view.

5. Repeat steps 3 to 4.

If necessary, perform the following operations.

When selecting a view to be performed

- To select the next view, select the Protocol tab on the touch panel, and then select [Next View].
- To select the previous view, select the Protocol tab on the touch panel, and then select [Prev. View].
- To select a view from the View List, press the [Pointer] key to display the pointer and then select the view.
NOTE: Pressing the [R] key takes you to the next view. Pressing the [L] key returns you to the previous view.

To pause the protocol

- Select the Protocol tab on the touch panel and then select [Pause Protocol].
- Press the [Pointer] key to display the pointer and then select [Pause] in the Assist Information area.

The following message appears: "Protocol was paused. Press [Pause] or [Pause Protocol] to resume an original protocol."

To exit the Protocol Assistant without finishing all the views

- Select the Protocol tab on the touch panel and then select [Exit Protocol].
 - Press the [Pointer] key to display the pointer and then select [Exit] in the Assist Information area.
- The following message appears and unfinished views are listed: "Would you like to exit the protocol assistant? There are unfinished protocol views." or "Would you like to exit the protocol assistant? There is unfinished protocol view."
To exit the Protocol Assistant, select [Exit Protocol] in the message dialog box.
To return to the view immediately before [Exit Protocol] on the touch panel is selected, select [Cancel].
To return to the top of the unfinished views, select [Return to View].

6. Complete all the views.

- The following message appears: "All views have been completed. Would you like to exit the protocol assistant?"
To exit the Protocol Assistant, select [Exit Protocol].
Select [Cancel] to close the message dialog box without exiting the Protocol Assistant.
NOTE: If the preset Disp. Complete Dialog is set to Off, the message is not displayed and the protocol ends.

Reference information

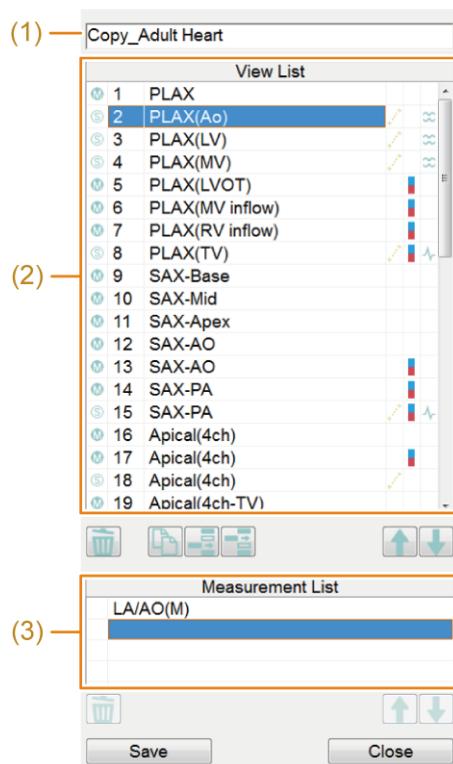
4.3 *Saving video* on page 141

10.7.4 *Assigning functions* on page 343

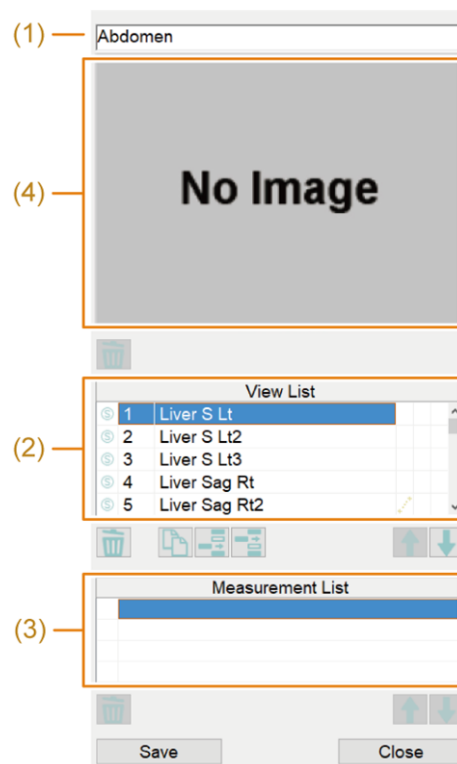
5.2 Creating and editing a protocol

5.2.1 Screen display

Information about the protocol being created or edited is displayed in the Assist Information area.

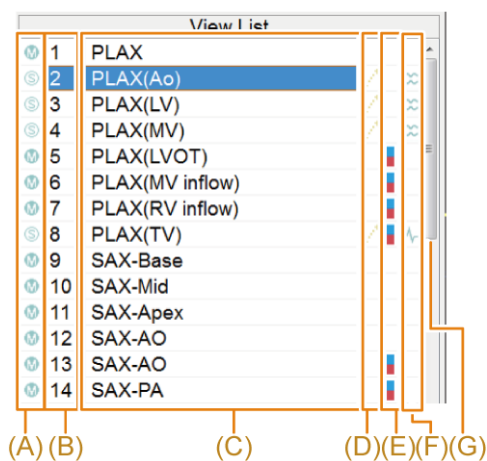


When a reference image is hidden



When a reference image is displayed

- (1) Protocol Name
- (2) View List



(A) Storage format of an image

S : Still image, M : Video

(B) View number

(C) View name

(D) Measurement settings

Blank: No measurement registered, : Measurement registered

(E) Color Doppler settings

Blank: B mode image, : Color mode image, TDI mode image

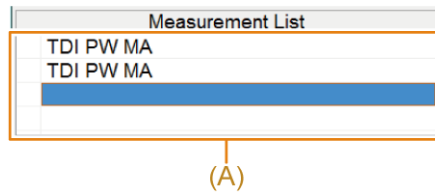
(F) Display modes

Blank: Tomographic image only, : PW mode or CW mode, : M mode, : Dual-screen view, : Quad-screen view

(G) Scroll bar

Scrolls the View List.

(3) Measurement List



(A) Measurements registered in the view

(4) Reference image area

For a View for which no reference images are registered, "No Image" is displayed.

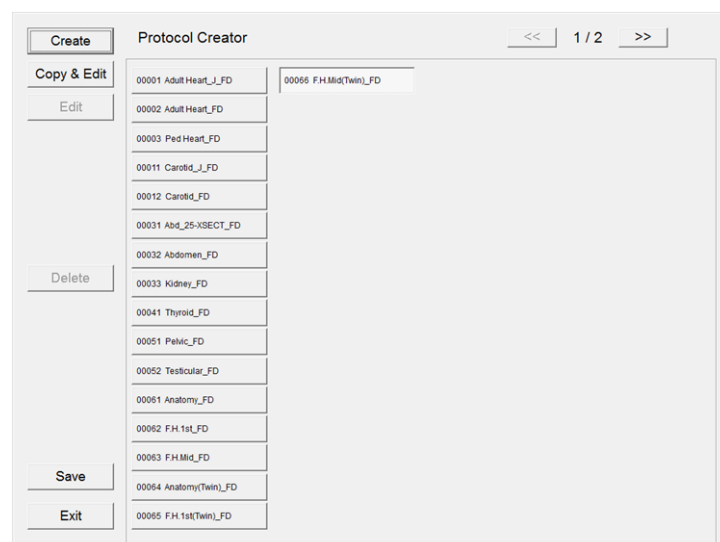
5.2.2 Creating a new protocol

Procedure

1. Select the Protocol tab on the touch panel.

2. Select [Creator] on the touch panel.

→ The Protocol Creator screen is displayed.



3. Select [Create].

→ The Protocol Name dialog box opens.

4. Set the protocol name.

- a. Enter the protocol name.
NOTE: Select Use Guide View to set a reference image. For details, see "Registering and Editing a Reference Image" in this chapter.
- b. Select [OK].
→ The View List and the Measurement List are displayed in the Assist Information area.
5. Set the view name.
 - a. Enter the view name.
 - b. Press [Enter] on the keyboard.
6. For the view, set display conditions (such as the display mode) for the image.
7. If necessary, set the following for the view.
 - To set comments, display the comments to be set on the screen.
 - To set body marks, display the body marks to set on the screen.
 - To set measurements, execute the measurements.
NOTE: After you confirm the measurements, make sure the measurement name is displayed in the Measurement List.
8. Set the storage format of the image.
When saving the image as a still image
 - a. Press the [Freeze] key to freeze the image.
 - b. Press the [Store] key to save the image.
 - c. Press the [Freeze] key to unfreeze the image.
→ Proceed to the registration of the next view.
When saving the image as a video
 - a. Save the video.
NOTE: For details about how to save a video, see "Saving video" in this manual.
 - b. If Freeze is not set to On, press the [Freeze] key to perform a freeze.
 - c. Press the [Freeze] key to unfreeze the image.
→ Proceed to the registration of the next view.
9. Repeat steps 5 to 8 to register necessary views.
To edit a protocol name:
 - a. Press the [Pointer] key.
 - b. Move the pointer to the protocol name, and then press the [Enter] key twice.
 - c. Enter the protocol name.
 - d. Press [Enter] on the keyboard.
To edit a view name:
 - a. Press the [Pointer] key.

- b. Move the pointer to the view to be edited, and then press the [Enter] key twice.
- c. Enter the view name.
- d. Press [Enter] on the keyboard.

To edit the registered view settings:

- a. Press the [Pointer] key.
- b. Move the pointer to the view to be edited. Then press the [Enter] key.
- c. Set the view conditions in the same way as in steps 6 to 8.

To edit View List:

- a. Press the [Pointer] key.
- b. Move the pointer to the view to be edited. Then press the [Enter] key.
- c. Press the [Pointer] key.
- d. Select an icon displayed under the View List to edit the view.



: Deletes the selected view.



: Copies the selected view to add the copy after that view. Set the view conditions in the same way as in steps 5 to 8.



: Adds a new view before the selected view. Set the view conditions in the same way as in steps 5 to 8.



: Adds a new view after the selected view. Set the view conditions in the same way as in steps 5 to 8.



: Moves the selected view before that view.



: Moves the selected view after that view.

If the following message is displayed: "You are moving from view which is not registered. Do you delete non-registration view?"

This message is displayed when the registration of the view is not finished but the user attempts to select a different view.

To delete the unregistered view, select [OK].

To register the unregistered view, select [Cancel], and then set the view conditions in the same way as in steps 5 to 8.

To edit Measurement List:

- a. Press the [Pointer] key.
- b. Move the pointer to the measurement to be edited. Then press the [Enter] key.
- c. Select an icon displayed under the Measurement List to edit the measurement.



: Deletes the selected measurement.



: Moves the selected measurement before that measurement.



: Moves the selected measurement after that measurement.

10. End the creation of the protocol.

- a. Press the [Pointer] key.
- b. Select [Save] in the Assist Information area.
→ The created protocol is saved.
- c. Select [Close] in the Assist Information area.
If the following message is displayed: "A view which is not registered is deleted."
This message is displayed when Freeze was not turned Off during the registration of the last view and the registration of that view is incomplete.
If you do not want to register the view, select [OK].
To register the view, select [Cancel], and then set Freeze to Off. Finish the protocol creation in the same way as step 10.

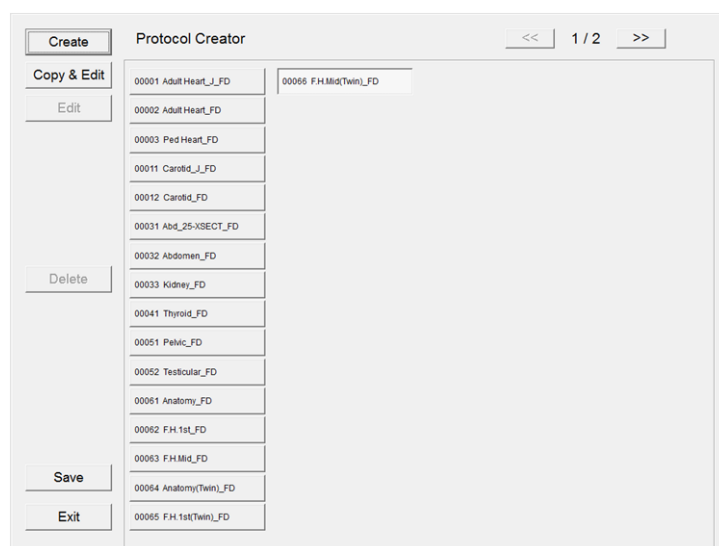
Reference information

4.3 Saving video on page 141

5.2.3 Editing a protocol

Procedure

1. Select the Protocol tab on the touch panel.
2. Select [Creator] on the touch panel.
→ The Protocol Creator screen is displayed.



3. Move the pointer to the protocol to be edited. Then press the [Enter] key.
To edit a protocol copied from the created protocol:
 - a. Select [Copy & Edit].
→ The Protocol Name dialog box opens.
 - b. Enter the protocol name.
 - c. Select [OK].To edit the created protocol:
 - a. Select [Edit].

- The Protocol Name dialog box opens.
- b. Enter the protocol name.
- c. Select [OK].
- 4. Edit the View List.
NOTE: For details about how to edit the View List, see "Creating a new protocol" in this manual.
- 5. Edit the Measurement List.
NOTE: For details about how to edit the Measurement List, see "Creating a new protocol" in this manual.
- 6. End the editing of the protocol.
 - a. Press the [Pointer] key.
 - b. Select [Save] in the Assist Information area.
If the following message is displayed: "A view which is not registered is deleted."
This message is displayed when Freeze was not turned Off during the registration of the last view and the registration of that view is incomplete.
If you do not want to register the view, select [OK].
To register the view, select [Cancel], and then set Freeze to Off. Finish the editing of the protocol in the same way as step 10.
→ The edited results are saved.
 - c. Select [Close] in the Assist Information area.

Reference information

5.2.2 *Creating a new protocol* on page 157

5.2.4 Registering and editing a reference image

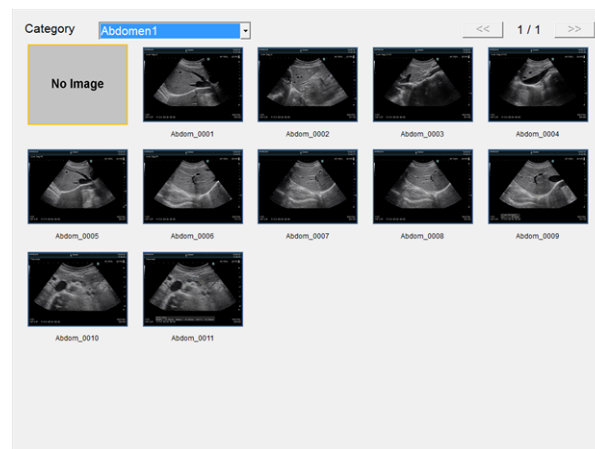
Prior confirmation

- Create a reference image. For details on how to create reference images, see "Creating a File for Saving Reference Image Data" in this chapter.
- Import the reference image into the system. For details, see "Loading and backing-up presets" in this manual.
- For details about how to create and edit a protocol, see "Creating and editing a protocol" in this chapter.

Procedure

1. Select the Protocol tab on the touch panel.
2. Select [Creator] on the touch panel.
→ The Protocol Creator screen is displayed.
3. Select [Create] or [Copy&Edit].
→ The Protocol Name dialog box opens.

4. Set the protocol name.
 - a. Enter the protocol name.
 - b. Confirm that Use Guide View is selected.
 - c. Select [OK].
 - The reference image area is displayed in the Assist Information area.
 5. For the View, set display conditions (such as the display mode) for the image.
 6. Press the [Freeze] key.
 7. Press the [Store] key.
 - The reference image registration window appears.
- NOTE: For a View for which no reference images are registered, "No Image" is displayed in the reference image area.



8. Select the data of the reference image to register.
 - a. From the Category dropdown list, select the folder from which data is to be imported.
 - The images stored in the folder are displayed.
 - b. Move the pointer to the image that you want to register. Then press the [Enter] key.
 - The registration window closes, and the selected image is displayed in the reference image area.
- NOTE: If you do not want to register the image, select [No Image].
9. Press the [Freeze] key.
 - Proceed to the registration of the next View.
 10. Repeat steps 5 to 9 to register the required reference images.

(1) Creating a File for Saving Reference Image Data

Prior confirmation

Copy the target image (static image) to the media in bitmap format by referencing "Outputting Images" in this document.

Procedure

- Create the reference image storage file with the following configuration on a computer.
File name: GuideView_bmp > folder-name-1-of-your-choice > folder-name-2-of-your-choice > image-file-name-of-your-choice.bmp
Example: GuideView_bmp > Vascular > Carotid > CCA.bmp
NOTE: Enter alphanumeric characters for folder names and file names.
"Folder-name-1-of-your-choice" is displayed when you import the reference image to the system.
"Folder-name-2-of-your-choice" is displayed in the Category dropdown list.
Make sure that "image-file-name-of-your-choice (bmp image name)" is no more than 30 characters.

Reference information

Refer to the following for how to create and edit a protocol:

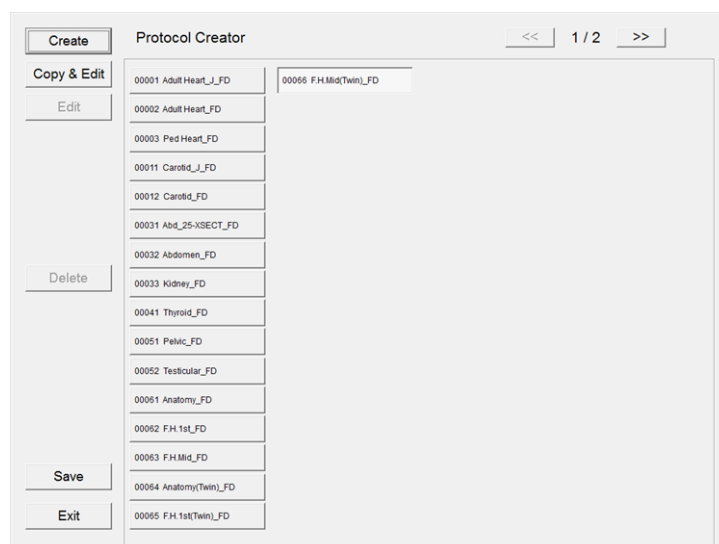
5.2.2 *Creating a new protocol* on page 157

5.2.3 *Editing a protocol* on page 160

5.2.5 Deleting a protocol

Procedure

1. Select the Protocol tab on the touch panel.
2. Select [Creator] on the touch panel.
→ The Protocol Creator screen is displayed.



3. Move the pointer to the protocol to be deleted. Then press the [Enter] key.
4. Select [Delete].
→ The selected protocol is deleted.
5. Select [Save].
6. Select [Exit].

5.3 Reference

5.3.1 Messages

Messages	Status or cause	Countermeasures
Please enter a protocol name.	This message is displayed when the user selects [OK] without entering a protocol name in the Protocol Name dialog box.	1. Select [OK]. 2. Enter the protocol name. [OK]: Clears the message.
Do you want to save changes to this protocol?	- This message is displayed when the user deletes a protocol in the Protocol Creator screen and does not select [Save] before selecting [Exit]. - This message is displayed when the user edits the protocol, and then does not select [Save] before selecting [Close].	[Save]: Deletes or edits the protocol and then closes the Protocol Creator screen. [Don't Save]: Closes the Protocol Creator screen without deleting or editing the protocol. [Cancel]: Continues to edit the protocol.
This protocol cannot be saved. This protocol is deleted if you are editing existing protocol.	This message is displayed when the user attempts to save an unregistered protocol in a view.	[OK]: Does not save the protocol. [Cancel]: Continues to edit the protocol.
The blank protocol name does not save the protocol. Do you want to delete this protocol?	This message is displayed when the user attempts to select [Save] in the Assist Information area to save the protocol without entering a protocol name.	[OK]: Does not save the protocol. [Cancel]: Continues to edit the protocol. Enter the protocol name when saving a protocol.
This scan mode can not be registered.	This message is displayed when the user attempts to register a mode that cannot be registered in a view.	[OK]: Clears the message.
A measurement that is not capable of being carried out is registered.	The measurement that is registered in a view cannot be started because the measurement does not exist in the system.	[OK]: Clears the message. If necessary, change the measurement registered in the view.
There is Annotation or Body Mark which cannot reappear.	The annotation or the body mark that is registered in the view cannot be displayed because they do not exist in the system.	[OK]: Clears the message. If necessary, change the annotation or the body mark registered in the view.

Messages	Status or cause	Countermeasures
There is Annotation or Body Mark which cannot reappear. Please do the re-registration.	The annotation or the body mark that is registered in the view cannot be displayed because they do not exist in the system.	[OK]: Clears the message. If necessary, change the annotation or the body mark registered in the view.
You can not allocate '_FD' to the end of the name.	This message is displayed when the user added _FD to the end of the protocol name.	1. Select [OK]. 2. Delete _FD. [OK]: Clears the message.
The protocol name to terminate in '_FD' does not save the protocol.	This message is displayed when the user added _FD to the end of the protocol name when creating or editing a protocol.	1. Select [OK]. 2. Delete _FD. [OK]: Clears the message.
List file is error. Failed to import images as following Image files [bitmap] do not exist in the folder.	No BMP format files were found in the folder from which files are to be imported.	[OK]: Clears the message.
List file is error. Failed to import images as following Load file failed.	An image in the folder from which files are to be imported was not loaded correctly. - The file format is incorrect. - The import-destination folder does not exist. - The folder configuration cannot be read. - A problem occurred: for example, the attempt to copy the images in bmp format failed.	[OK]: Clears the message.
List file is error. Failed to import images as following Image size over (Max 1024x768).	There is an image in the folder from which files are to be imported whose size exceeds the upper limit.	[OK]: Clears the message.
List file is error. Failed to import images as following File name length over (Max 30 characters).	There is an image in the folder from which files are to be imported whose file name exceeds the upper limit.	[OK]: Clears the message.
List file is error. Failed to import images as following Number of files over (Max 100 files).	The number of image files in the folder from which files are to be imported exceeds the upper limit.	[OK]: Clears the message.

Messages	Status or cause	Countermeasures
Guide View images in US are replaced by importing images. (NOT merge) Are you sure you want to continue?	At least one image already exists in the import-destination folder.	• [OK]: Overwrites the reference image. • [Cancel]: Returns to the original window without overwriting the reference image.

Reviewing images

Images stored on the system hard disk can be played back, or saved to USB-connected media or DVDs. Images that have been saved to a USB or DVD can be played back as well as saved to other media.

NOTE: Use a DVD drive recommended for the system. For more details, please contact our office.

- 6.1 Playback image display
- 6.2 Displaying a selected image full screen
- 6.3 Displaying a saved image and the real-time image for comparison
- 6.4 Searching for an image using the search screen
- 6.5 Configuring data anonymization
- 6.6 Editing video
- 6.7 Menu item
- 6.8 Copying Images
- 6.9 Deleting images
- 6.10 Saving images in a PC format
- 6.11 Transferring images
- 6.12 Printing images
- 6.13 Writing to CD-R
- 6.14 Writing to DVD-R
- 6.15 Checking free space
- 6.16 Staring an analysis

6.1 Playback image display

The following five types of screens are available for playing back images stored on the system hard disk, USB-connected media, etc.

1. Scanning screen (Current View)
On the screen that displays a real-time scan image, saved images are displayed as thumbnails.
2. Full Screen Display (Full Screen View)
Displays one selected image at the size it was when saved.
3. Comparison screen (Image Compare)
Displays a real-time scan image and saved images side-by-side.
4. Tile Display (Tile View)
Displays saved images side-by-side in the single-screen view.
5. Search screen ([Find])
Search for images stored on the system hard disk, USB-connected media, etc. by examination date and patient ID. The search results are displayed as icon images in a list.

6.1.1 Screen transition menu

The screen transition menu is used to switch screens.

The following 5 types are available. The following names are defined and used in this manual as follows.



[Current View]
Switches to the scanning screen.



[Find]
Switches to the search screen.



[Tile View]
Switches to the Tile view.



[Full Screen View]

Switches to the full-screen view of the selected thumbnail.
Full screen images are surrounded by a border.



[Image Compare]

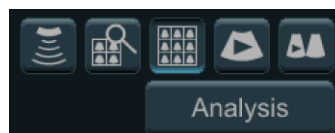
Displays the selected thumbnail in the comparison screen.

(1) Displaying the screen transition menu

The screen transition menu is hidden and icons are displayed in the search screen and in Tile view. Select the icon displayed in the screen transition menu area to open the screen transition menu.



Icon



Screen transition menu

6.2 Displaying a selected image full screen

This function plays the selected images full screen.

In a full screen display, the normal scan screen shows a selected image in the single-screen view. A playback mark is displayed on the selected thumbnails.

6.2.1 Displaying an Image selected from a thumbnail in a full screen display

Perform the following steps to select images from the thumbnails on the screen, and display the images full screen.

Procedure

- Move the pointer to the desired thumbnail, and then press the [Enter] key twice.
NOTE: When you move the pointer to the target image, the image increases in size.
- Using the screen transition menu to display images
 - a. Select the desired thumbnail.
 - b. Select [Full Screen View] from the screen transition menu.
- Using the touch panel menu to display images
 - a. Select the desired thumbnail.
 - b. Select [Full Screen View] on the touch panel.
- Using pop-up menus to display images
 - a. Move the pointer onto the target thumbnail.
 - b. Press the [UNDO] key.
 - c. Select [Full screen This Image].

(1) Switching to the scanning screen

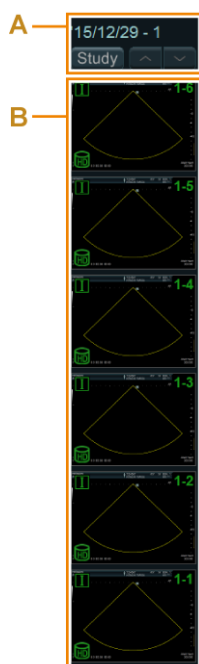
Procedure

- Press the [Freeze] key.
- Select [Current View] from the screen transition menu.
- Select [Current View] on the touch panel.

(2) Thumbnail area

The thumbnail area is composed of thumbnail images and the menu for switching the thumbnail display.

Only the saved images of the patient being examined are displayed as thumbnails. The most recent saved images are displayed in order starting from the top.



A: Menu for switching the thumbnail display

B: Thumbnail images

(a) Switching the thumbnail image display

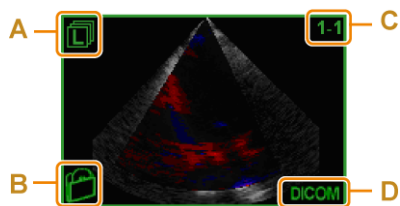
Procedure

- Switching the thumbnail page.
 - Press the [Pointer] key and use the pointer that is displayed to select ▲▼ on the thumbnail display switching menu.
 - Move the pointer to a thumbnail and turn the [Pointer] rotary encoder.
- Displaying saved images with a different study ID as thumbnails.

In the Study field, you can select saved images to be displayed as thumbnails from the study ID (including current examination) and [Custom] (all images with the same patient ID).

(3) Thumbnail information

The following icons appear on thumbnails in the thumbnail area of the scan screen, Tile view, and search screen.



- A: Image type icon

	Still Image (RGB Format)		Still image (Raw Format)
	Video (Video Clip Format)		Video (Raw Format)
	Single Line image		Multi Line image
	3D data (volume data)		DICOM SR File
	Stress Echo Image		File saved in Stress Echo State
	File with Position Information		DICOM data created by the CT modality
	DICOM data created by the MRI modality		RVS status storage file
	ET Waveform Data		

The icon color will indicate the status of the following types of image output.

Green	Original image and/or states other than the below.
Light Blue	Images that have been output to external media.
Orange	Images sent to a server that have not received commitment.
Blue	Images sent to a server that have received commitment.
Yellow	Images imported to the system from an external media or server.

- B: Device icon

Use the icons to indicate storage destination.

	System hard disk		USB-connected media		DVD		CD-R buffer
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- C: Image number (series number - consecutive number)

- D: Stored image format

Icons indicate the storage format of images.

	JPEG format
	Bitmap format

	TIFF format
	ASF format
	AVI format
	WMV format
	MP4 format
	DICOM format
No display	Original (Format unique to the system)

- Lock icon



: Shows whether the image is locked or not.

- Display mark



: image being played



: data that cannot be displayed

(4) Playback operation menu

DICOM images or images saved to the system hard disk, etc.



PC format images



- 1 Plays back the raw data. You can adjust various aspects of images such as the gain. Physiological signals and scale bars can also be displayed.
- 2 Plays back the image right before the selected image.
- 3 Plays back the image right after the selected image.
- 4 Displays the previous frame (while playback is stopped).
- 5 Reduces the playback speed.
- 6 Playing (press this icon to stop).
- 7 Increases the playback speed.
- 8 Displays the subsequent frame (while playback is stopped).
- 9 Rewinds the image.
- 10 Fast-forwards the image.

(5) Playing back videos

NOTE:  is displayed on the thumbnail of the image being played.

Prior confirmation

If necessary, assign the following function:

- Assign [Playback] to a direct switch, custom switch, or function menu.
- Assign [Playback Speed] to the function menu.

Procedure

- Select  of the playback operation menu.
To change the playback speed:
Press  to decrease and  to increase playback speed.
Pausing playback
Select  again.
- Roll the trackball upward.
To change the playback speed:
Roll the trackball down to decrease and up to increase playback speed during continuous playback.
Pausing playback
Roll the trackball left or right.
- Select [Playback].
To change the playback speed:
Change [Playback Speed].
Pausing playback
Select [Playback] and turn it Off.

6.2.2 Selecting an image from the Tile view to display it in full-screen mode

Selects a patient image displayed in the Tile view and displays it full screen.

Procedure

1. Switch to the Tile view.
 - Press the [Review] key.
 - Select [Tile View] from the screen transition menu.
 - Select [Tile View] on the touch panel.

→ Saved images are displayed in Tile view.
2. Display the desired image full screen.

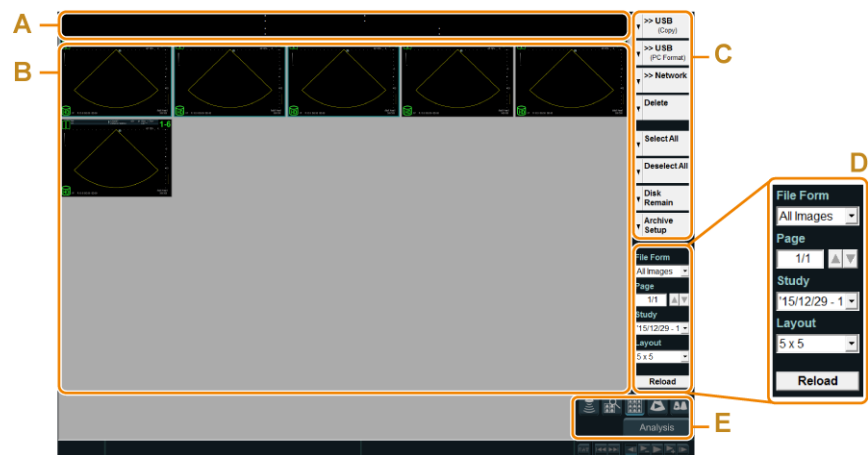
NOTE: When you move the pointer to the target image, the image increases in size.

 - Move the pointer to the desired image, and then press the [Enter] key twice.
 - Select the desired image and then select [Full Screen View] from the screen transition menu.
 - Select the desired image and then select [Full Screen View] on the touch panel.

→ The desired image is displayed full screen.

(1) Tile view

Tile view displays images with the patient ID being examined in a list.



Tile view example (layout is 5x5)

- A : Patient data with pointer image
- B : Thumbnails
- C : Menu (configurable by user)
- D : Menu for switching the thumbnail display
- E : Screen transition menu

(2) Changing the thumbnail display in the Tile view via the menu for switching the thumbnail display

Procedure

- To filter the images by image type, select the type from the File Form drop-down list.
Options for image display

All Images	Displays all images.
Single Images	Displays only still images.
Multi Images	Only displays videos.
RAW Images	Only displays images saved in Raw format.
Stress Images	Only displays stress echo acquired images.
Single & V.C.	Only displays still images and videos in Video Clip format.

- Switching the thumbnail page.
 - Press the [Pointer] key and use the pointer that is displayed to select ▲▼ on the thumbnail display switching menu.
 - Move the pointer to a thumbnail and turn the [Pointer] rotary encoder.
- Displaying saved images with a different study ID as thumbnails.
 - Select ▼ on the right of the Study field of the menu for switching the thumbnail display.

→ You can select saved images to be displayed in the Tile view from the study ID (including current examination) and [Custom] (all images with the same patient ID).

- Switching the layout
 - Select ▼ on the right of the Layout field of the menu for switching the thumbnail display.

6.3 Displaying a saved image and the real-time image for comparison

You can display a saved image and the real-time image side by side.

Side-by-side display for comparison is available only when both the real-time image and selected image are a tomographic image in the single-screen view.

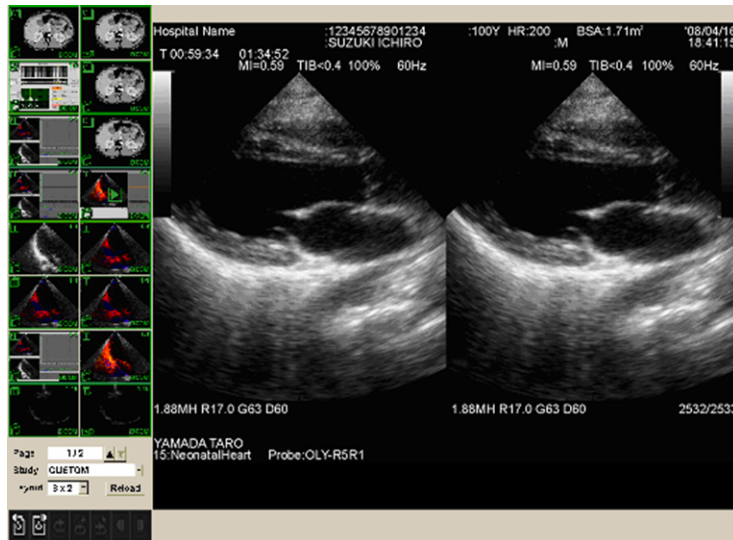
A real-time image can be compared with only an image that shares the same patient ID.

Procedure

- Using the screen transition menu to display images
 - a. Select a saved image.
 - b. Select [Image Compare] from the screen transition menu.
- Using the touch panel menu to display images
 - a. Select a saved image.
 - b. Select [Image Compare] on the touch panel.
- Using pop-up menus to display images
 - a. Move the pointer onto the target thumbnail.
 - b. Press the [UNDO] key.
 - c. Select [Compare This Image].

6.3.1 Comparison screen

The real-time image is displayed on the right, and the selected image is displayed on the left. If you set [Loop Mode (Img Compare)] to [ECG Sync] on the touch panel, the image is played in synchronization with the R-wave of the real-time image. To stop synchronization, set [Loop Mode (Img Compare)] to [Free Run].



(1) Displaying a playback image in full-screen mode

Procedure

- Select [Full Screen View] from the screen transition menu.
- Select [Full Screen View] on the touch panel.

(2) Displaying a real-time image in full-screen mode

Procedure

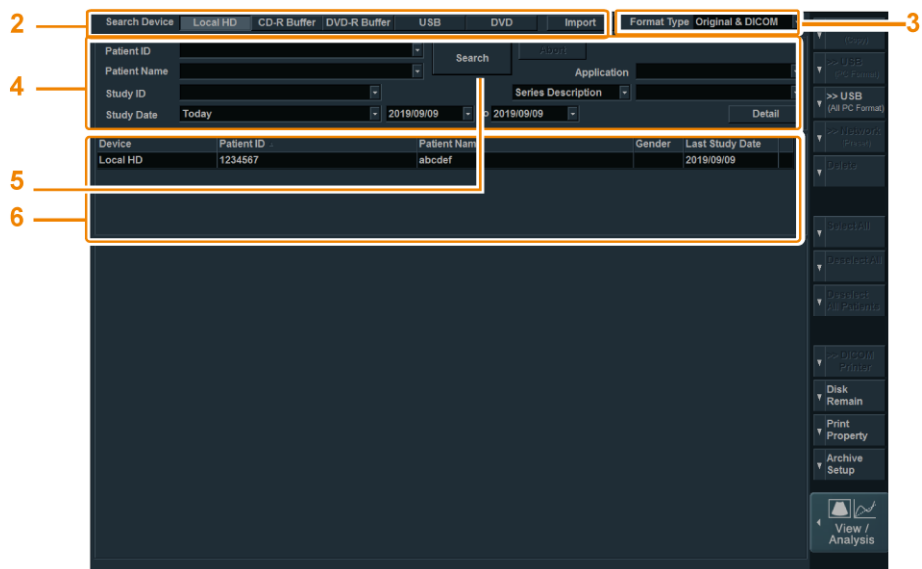
- Select [Current View] from the screen transition menu.
- Select [Current View] on the touch panel.

6.4 Searching for an image using the search screen

Specify a patient ID and device to search for an image.

Procedure

1. Switch to the search screen.
 - Select [Find] from the screen transition menu.
 - Select [Find] on the touch panel.



Search screen

2. Select the target device with Search Device.
3. Select an image format with Format Type.
4. Configure patient information as the search key.

Selecting from the History

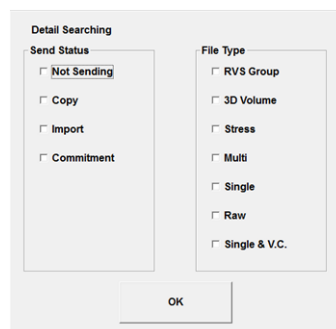
You can select from the search history by using ▼.

Searching for images by send status or image type

- a. Select [Detail].

→ The following dialog box is displayed.

NOTE: You can select items when Local HD is included in the options for Search Device.



- b. Select the check boxes for the items to be searched.

Item		Description
Send Status	Not Sending	Searches for images that have not been sent to the server.
	Copy	Searches for images that have been output to external media.
	Import	Searches for images imported in the Import screen or using Copy (Local HDD).
	Commitment	Displays images that were successfully sent to the server and received a Storage Commitment from the server.
File Type	RVS Group	Searches for images related to RVS.
	3D Volume	Searches for 3D volume data.
	Stress	Searches for Stress Echo images.
	Multi	Searches for videos.
	Single	Searches for still images.
	Raw	Searches for videos in Raw format.
	Single & V.C.	Searches still images and videos in Video Clip format.

5. Select [Search].
 - Search results are displayed in the patient ID list.
6. Select a patient.
 - The images included in the subject information are listed in the thumbnails.
7. Follow the steps below to return to the scanning screen.
 - Press the [Review] key.
 - Press the [Freeze] key.
 - Select [Current View] from the screen transition menu.
 - Select [Current View] on the touch panel.

6.4.1 Locking images

Locking desired images prevents them from being deleted.
Only DICOM images saved to the system hard disk are locked.

Procedure

1. Search for an image using the search screen.
2. Select an image to lock.
3. Select .
 - The image is locked.
4. Follow the steps below to unlock an image.
 - a. Select the desired image.

- b. Select .

→ The image is unlocked.

6.4.2 Searching for CT and MR Images and Other Images

(1) Searching a Server or Other External Media

CT and MR data, etc. on a server or other external media can be searched.

The modality that can be imported into the system is [US], [CT], [MR], [PT], or [DOC].

You can import images of the modalities that comply with the DICOM Conformance Statement.

Procedure

1. Switch to the search screen.
 - Select [Find] from the screen transition menu.
 - Select [Find] on the touch panel.
 - Open the screen for selecting RVS patient data.

2. Select [Import].

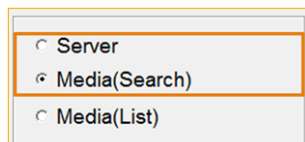
3. Select a folder to search.

Selecting a folder on a storage media

- a. Turn Media(Search) On.
- b. Select a folder from the tree view.

Selecting a server

- a. Turn Server On.
- b. Select the desired AE title from the server list.



4. Enter a category to search.

- a. From Modality, select [US], [CT], [MR], [PT], or [DOC].
- b. Configure patient information as the search key.

NOTE: If you click [Search] while Media(Search) is selected and Patient ID is blank, an asterisk (*) is entered in Patient ID and all data is searched.

NOTE: To search a DICOM Server, enter search conditions in Patient ID.

Clearing search conditions

Select [Clear].

5. Select [Search].
 - The search results are displayed in a list.
6. Select the desired patient's study ID from the Study list.
 - The images of the selected patient's study ID are displayed in the Image list.
7. To preview an image, select the image from the Image list and select [Preview]. Select [Exit] to close the preview screen.

(2) Importing CT, MR, and PET Images into the System Hard Disk

NOTE: When importing all Series images, it might take time to import them if you select [Select All].

NOTE: If you select a Study from the Study list, all Series images included in the Study are imported and the importing might take time.

NOTE: By selecting images from the Series list to import them, you might be able to shorten the time required for the importing.

Procedure

1. Search for a CT, MR, or PET image.
2. Select the desired image.

Selecting Study images

- a. Select Study.

Selecting Series images

- a. Select Study.
- b. Select Series.

Selecting images in a Series

- a. Select Study.
- b. Select Series.
- c. Select images.

Selecting all images of the selected Series

Select [Select All].

3. Select [Import].

→ Imports selected images into the system hard disk.

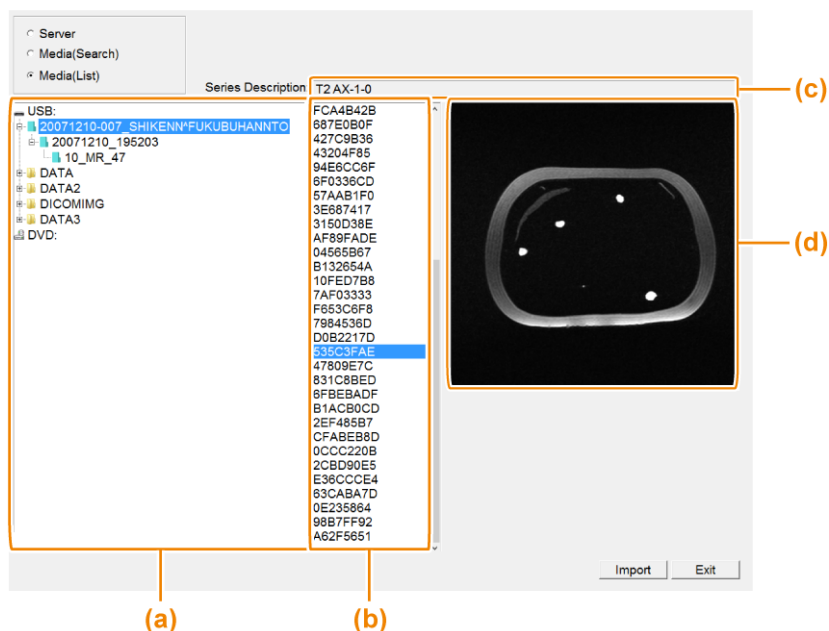
Selecting [Cancel] cancels saving. However, because the database is updated in units of files, image copying is canceled only after [Cancel] is selected.

4. Select [Exit] to return to the search screen.

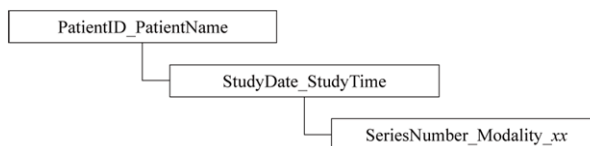
(3) Importing DICOM Files from a DICOMDIR or a Folder

In the Media(List) screen, select a DICOMDIR icon or a folder to import DICOM files.

Media(List) screen



- (a) Folder tree Displays the folders in the media in tree format.
If a DICOMDIR exists immediately below the media, the Patient, Study, and Series that exist in the DICOMDIR are displayed as blue DICOMDIR icons . DICOMDIR icons hierarchically display Patient-Study-Series. Icon names are as follows:



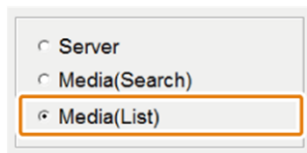
xx indicates the number of files.

NOTE: DICOMDIR icons virtually display the Patient-Study-Series structure of a DICOMDIR.

- (b) File list Displays the files that are included in the folder selected in the folder tree. If a DICOMDIR icon is selected, all files included in the icon are displayed.
For example, if you select the DICOMDIR icon for a Patient, files included in all of the Patient's Study and Series are displayed.
- (c) Series Description Displays (0008,103E)Series Description of the file selected in the file list.
- (d) Thumbnails The thumbnail of the file selected in the file list is displayed.

Procedure

1. Switch to the Find screen, and then select [Import].
2. Select Media(List).



3. Select a DICOMDIR icon or folder to be imported.
Importing files from a DICOMDIR
Select the DICOMDIR icon for the Patient, Study, or Series to be imported.
Importing files from a folder
Select a folder that includes the DICOM files to be imported.
4. Select [Import].
→ All of the image files selected in the file list are imported.
Selecting [Cancel] cancels saving.
5. Select [Exit] to return to the search screen.

6.4.3 Displaying found images

(1) Displaying a found image full screen

Procedure

1. Select the thumbnail of the image you wish to display full screen.
NOTE: When you move the pointer to the target image, the image increases in size.
2. It switches to the full screen view.
 - Select [Full Screen View] from the screen transition menu.
 - Select [Full Screen View] on the touch panel.

→ The image selected in step 1 is displayed full screen. When multiple images are selected in step 1, the most recent saved image is displayed in full-screen mode.

(2) Displaying found images in the Tile view

Procedure

1. Select the thumbnail of the image you wish to display in the Tile view.
2. Switch to the Tile view.
 - Select [Tile View] from the screen transition menu.
 - Select [Tile View] on the touch panel.

6.5 Configuring data anonymization

Anonymizes personal information in data output from the system.

Data and images output from the system contain personal information. Patient IDs or names that appears on screen as well as the information embedded in the files contain personal information. Perform the following steps to anonymize such private information and to output data and images.

Procedure

1. Select [Archive Setup] in Tile view or on the search screen.
2. Set each property.
NOTE: The mask state is checked when you save images by turning Teaching File to On.

The 'Archive Setup' dialog box contains the following sections:

- File Format(Convert to PC Format)**
 - Single Frame: ☒ BMP, ☐ JPEG, ☐ TIFF
 - Multi Frame: ☒ AVI, ☐ WMV, ☐ MP4
- Teaching File**
 - Copy: ☐ On, ☒ Off
 - PC Format: ☐ On, ☒ Off
 - Network: ☐ On, ☒ Off
- Additional Mask Item**
 - ☐ Hosp. & Sonographer Name
 - ☒ Age
 - ☒ Gender
- Mask Position Manual Setting**
 - ☒ 1024 x 768pix
 - ☐ 800 x 600pix
 - ☐ 640 x 480pix
 - ☐ Analysis 1
 - ☐ Analysis 2
- DICOM Attribute** (button)
- Exit** and **Cancel** buttons.

Configuring DICOM-related tags

Select [DICOM Attribute] to set the items.

NOTE: If you copy data with the Private check box in Mask Information selected, data in Raw format is converted to RGB format. For this reason, data cannot be played back by loading it to the cine memory.

Images with DICOM-related tags cannot be measured.

3. Select [Exit].

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 *Selecting an image from the Tile view to display it in full-screen mode* on page 173

6.4 *Searching for an image using the search screen* on page 176

6.5.1 Settings

Archive Setup setting items

Item	Description
Single Frame	Selects the still image storage format.
Multi Frame	Selects the storage format of the video.
Teaching File	Configures the mask for patient information in the image when copying or transferring it to storage media or to a server.
Additional Mask Item	Configures additional masking items to those above.
Mask Position Manual Setting	Sets the target image size. This setting selects 1024 x 768 pixels for images stored in the system.

DICOM Attribute (Mask Item of DICOM Attribute) setting items

Item	Description
Mask Information	Selects information to mask. NOTE: Set Personal to On when you mask other items.

Item	Description
Dummy Patient ID	Enter the Prefix (enter no more than 20 characters) and select No Code. The patient ID is replaced with the Prefix. For Random Code, leave the Prefix blank or enter a code (consisting of a maximum of 20 characters), and set Random Code to On. Random (8 digits) is added to Prefix and subject ID is replaced.

6.6 Editing video

This function allows you to select part of a video and save it again to reduce the amount of data sent to the server.

NOTE: Only the system hard disk is used as the storage destination.

Prior confirmation

Assign [Trimming] to the function menu.

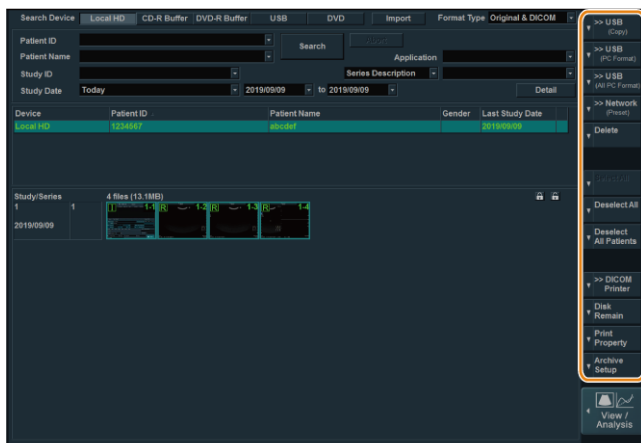
If necessary, assign [Full Screen View] to a direct switch, custom switch, or function menu.

Procedure

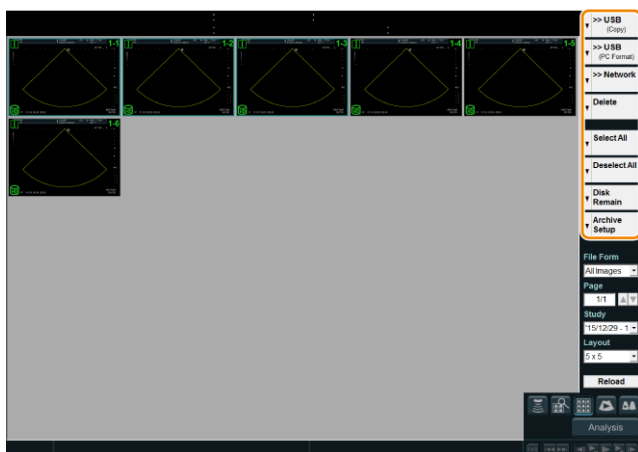
1. Switch to the Tile view.
 - Press the [Review] key.
 - Select [Tile View] from the screen transition menu.
 - Select [Tile View] on the touch panel.
2. Select the desired image.
 - Move the pointer to the desired image, and then press the [Enter] key twice.
 - Move the pointer to the target image. Then select [Full Screen View].
 - Plays back the selected image in full screen.
3. Stop playback.
 - a. Turn [Cine Search] On.
 - b. Roll the trackball left or right.
4. Select the loop sector and save.
 - a. Use the trackball to display the start frame. Then press the [Enter] key.
 - b. Display the end frame. Then press the [Enter] key.
5. Select [Trimming].
 - The selected section is saved in a separate file.
The selected section is played back in full-screen mode while it is being saved.

6.7 Menu item

A user configurable menu is available in the search screen and Tile view.
Select a menu and, for example, copy the saved images.



Search screen menus

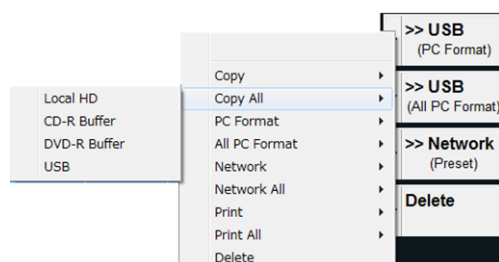


Tile view menus

6.7.1 Displaying a needed menu

Procedure

1. Select the ▼ from the menu.
2. Select [###] from the displayed items (### is an operation).
When another party is required for saving or sending
Select the next-displayed [###] (### is the storage destination).
→ The selected menu is displayed.



6.7.2 Using menus to select images

To select a saved image, put the pointer on the image, and then press the [Enter] key.
In the search screen or Tile view, use the menu to select images.
Images can be selected even if the patient ID or storage devices are different.

Procedure

- Selecting all stored images for the selected patient.
Select [Select All] from the menu.
- Deselecting all stored images for the selected patient.
Select [Deselect All] from the menu.
- Deselect all stored images of other patients.
Select [Deselect All Patients] from the menu.

If there is no menu

Move the pointer to the ▼ menu button, and then press the [Enter] key. From the displayed items, select [Select All], [Deselect All], or [Deselect All Patients].

6.8 Copying Images

This function is for saving selected images to a designated device without changing the save format.

Procedure

1. Select the desired image(s) in Tile view or on the search screen.
2. Select [>>### (Copy)] (### is the output destination) from the menu.
Output destinations include the Local HD (system hard disk), USB, CD-R Buffer, DVD, and DVD-R Buffer.
"Are you sure you want to copy this image?" or a similar message appears.
When an archive message is displayed
For details, see 6.8.1 *When an archive message is displayed* on page 188 in this manual.
3. Check the number of selected images displayed in the message.
4. Select [OK].

NOTE: Some characters in the Patient ID included in a file name might be converted.
The characters that are converted are as follows:

Original character		Output character		Original character		Output character		Original character		Output character
s		s		s		s		s		s
(SP)*1	→	-_		+	→	-R		@	→	-j
!	→	-H		,	→	-S		[	→	-k
"	→	-I		-	→	--		\	→	-l
#	→	-J		.	→	-U		]	→	-m

\$	→	-K	/	→	-V	^	→	-n
%	→	-L	:	→	-W	_	→	-o
&	→	-M	;	→	-X	`	→	-p
'	→	-N	<	→	-Y	{	→	-q
(	→	-O	=	→	-g		→	-r
)	→	-P	>	→	-h	}	→	-s
*	→	-Q	?	→	-i	~	→	-t

*1.

(SP) indicates a half-width space character.

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 *Selecting an image from the Tile view to display it in full-screen mode* on page 173

6.4 *Searching for an image using the search screen* on page 176

6.8.1 When an archive message is displayed

(1) If data anonymization has not been configured

Procedure

1. Remove the check on Teaching File on the Archive message.
2. Select [Exit].

(2) If data anonymization has been configured

Procedure

1. Insert the check on Teaching File on the Archive message.
2. Check the message.

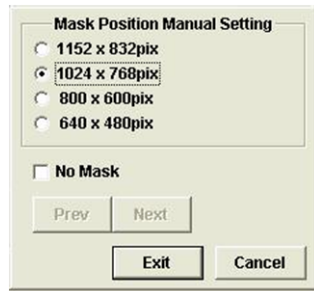
Messages	Status
This mask position of all files is detected.	When the output size of all selected files has been detected.
The mask position of some files cannot be detected. Set the mask position manually.	When there are files whose output size could not be detected.
WMV or MP4 files have not been masked.	When WMV or MP4 files are included among the selected files. MWV and MP4 files cannot be masked.

3. Check the images and revise the masked position if necessary.
 - a. Select the [1 by 1 Setting/Preview] button.
 - b. Select [Prev] or [Next] to display the desired image.
 - c. Select the resolution with Mask Position Manual Setting.

For data such as reports which are not masked

Set No mask to On.

- d. Repeat steps b to c.
- e. Select [Exit].



4. Select [Exit] on the archive message.

6.9 Deleting images

Procedure

1. Select the desired image(s) in Tile view or on the search screen.
2. Select [Delete] from the menu.
Select [Delete] to delete selected images.
Select [Delete CD-R Buffer] on the touch panel to delete all data in the CD-R Buffer.
Select [Delete DVD-R Buffer] on the touch panel to delete all data in the DVD-R Buffer.
Select [Delete All] on the touch panel to delete all patient ID images searched for in the search screen.
→ "Are you sure you want to delete this image?" or a similar message appears.
3. Check the number of selected images displayed in the message.
4. Select [OK].

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 Selecting an image from the Tile view to display it in full-screen mode on page 173

6.4 Searching for an image using the search screen on page 176

6.10 Saving images in a PC format

You can output images on the system hard disk to other devices in PC format.

Procedure

1. Select the desired image(s) on the system hard disk in Tile view or on the search screen.
2. Select [>>### (PC Format)] (### is the output destination) from the menu.
Output destinations include USB, CD-R Buffer, DVD, and DVD-R Buffer.

The following or similar message appears: "Are you sure you want to save this image?"
When an archive message is displayed
 For details, see 6.8.1 *When an archive message is displayed* on page 188 in this manual.

3. Select [OK].

NOTE: Some characters in the Patient ID included in a file name might be converted.
 The characters that are converted are as follows:

Original character		Output character		Original character		Output character		Original character		Output character
s		s		s		s		s		s
(SP)*1	→	-_		+	→	-R		@	→	-j
!	→	-H		,	→	-S		[	→	-k
"	→	-I		-	→	--		\	→	-l
#	→	-J		.	→	-U		]	→	-m
\$	→	-K		/	→	-V		^	→	-n
%	→	-L		:	→	-W		_	→	-o
&	→	-M		;	→	-X		`	→	-p
'	→	-N		<	→	-Y		{	→	-q
(	→	-O		=	→	-g			→	-r
)	→	-P		>	→	-h		}	→	-s
*	→	-Q		?	→	-i		~	→	-t

*1.

(SP) indicates a half-width space character.

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 *Selecting an image from the Tile view to display it in full-screen mode* on page 173

6.4 *Searching for an image using the search screen* on page 176

6.11 Transferring images

For transferring selected images to a designated server.

Prior confirmation

Set the destination server on the Server/Worklist tab in the preset ([Preset Setup] > [SystemPreset] > [DICOM]).

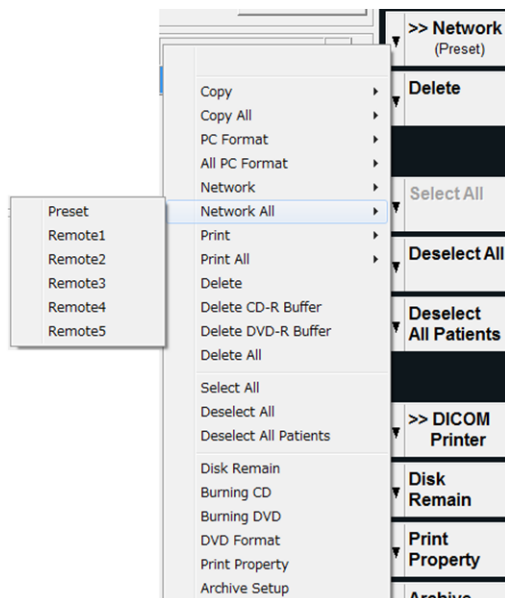
This function is for images in DICOM format. However, DICOM-CT () , DICOM-MR () , and RVS state files () will not be transmitted.

Procedure

1. Select the desired image(s) in Tile view or on the search screen.
2. Select [>>Network (Preset)] from the menu.

Changing the Transfer to destination

- a. Move the pointer to the ▼ menu button. Then press the [Enter] key.
- b. Move the pointer to [Network].
- c. Select any of the options [Remote1] to [Remote5].



→ If there is only one selected image, the following message appears: "Are you sure you want to send this image?" If there are multiple selected images, the following message appears: "Are you sure you want to send the *** stored images?"

3. Select [OK].

→ If the transfer is successful, the following message appears: "Send succeeded.".

Reference information

6.2.2 *Selecting an image from the Tile view to display it in full-screen mode* on page 173

6.4 *Searching for an image using the search screen* on page 176

10.2.6(2) *Server/Worklist tab* on page 273

6.12 Printing images

For printing the selected still image.

Procedure

1. Select the desired image(s) in Tile view or on the search screen.
2. Select [>>DICOM Printer] or [>>Local Printer] from the menu.
The following or similar message appears: "Are you sure you want to print this image?"
Click [>>Local Printer] to select images in the PC format.

Only images with "DICOM" on their thumbnail icons can be printed on DICOM printers.

If there is no menu

Move the pointer to the ▼ menu button, and then press the [Enter] key. Select [Print] > [DICOM] or [Print] > [Local] from displayed items.

3. Select [OK].

→ The images are collated by patient and printed.

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 Selecting an image from the Tile view to display it in full-screen mode on page 173

6.4 Searching for an image using the search screen on page 176

6.12.1 Configuring printer properties

Local and DICOM printer properties can be configured.

Procedure

1. Display the Tile view or search screen.

2. Select [Print Property] from the menu.

If there is no menu

a. Move the pointer to the ▼ menu button. Then press the [Enter] key.

b. Select [Print Property].

3. Configure the settings.

Print Property

Local Printer

Printer Name: [dropdown]
Num of Copies: [1]
Paper Size: [dropdown]
Orientation: [PORTRAIT]
Trim: [YES]
N-up: [6]

DICOM Printer

Model Name: [dropdown]
Num of Copies: [0]
Medium type: [dropdown]
Film size: [dropdown]
Orientation: [dropdown]
Display format: [dropdown]
Magnification: [dropdown]
Smoothing: [dropdown]
Trim: [dropdown]
Configuration info: [text area]
Appl. Entity: [dropdown]
Print priority: [dropdown]
Destination: [dropdown]
Min density: [0]
Max density: [0]
Border density: [dropdown]
Empty density: [dropdown]
Image polarity: [dropdown]

OK Cancel

4. Select [OK].

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 Selecting an image from the Tile view to display it in full-screen mode on page 173

(1) Printer property settings

Local Printer settings

Item	Description
Printer Name	Selects the local printer to print the images.
Num of Copies	Sets the number of copies to print.
Paper Size	Sets the paper size.
N-up	Sets the number of images to print on each page.
Orientation	Sets the paper orientation.
Trim	Sets the margins between images when printing multiple images on a single page.

DICOM Printer

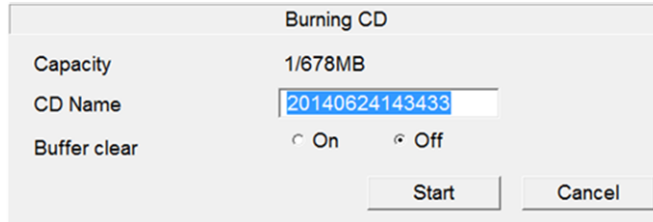
Item	Description
Model Name	Selects the DICOM printer to print the images.
Appl. Entity	Displays the name of the DICOM standard program.
Num of Copies	Sets the number of copies to print.
Medium type	Selects the print media.
Film size	Sets the paper size.
Orientation	Sets the printer orientation.
Display format	Sets the display format when multiple images are printed on a single page.
Magnification	Sets the type of magnification process to use.
Smoothing	Sets the type of data smoothing process.
Trim	Sets whether to place margins between images when printing multiple images on a single page.
Print priority	Sets the priority for processing print jobs.
Destination	Sets the printer to be used.
Min density	Enter the minimum brightness value for printing.
Max density	Enter the maximum brightness value for printing.
Border density	Sets the brightness of borders between images.
Empty density	Sets the brightness of areas with no image to print.
Image polarity	Sets the polarity of the printed image.
Configuration info	Space to enter comments.

6.13 Writing to CD-R

For writing CD-R buffer data to a CD-R.

Procedure

1. Select [Burning CD] from the menu of Tile view or search screen.
2. Enter a value for CD Name.
3. Select Buffer clear.
 - On: Displays a confirmation message for clearing the CD-R buffer after the CD-R is burned.
 - Off: Does not clear the CD-R buffer after the CD-R is burned.



Burning CD	
Capacity	1/678MB
CD Name	20140624143433
Buffer clear	☒ On ☐ Off
Start Cancel	

4. Select [Start].
 - Writing to the CD-R begins. The progress bar shows the progress.

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 *Selecting an image from the Tile view to display it in full-screen mode* on page 173

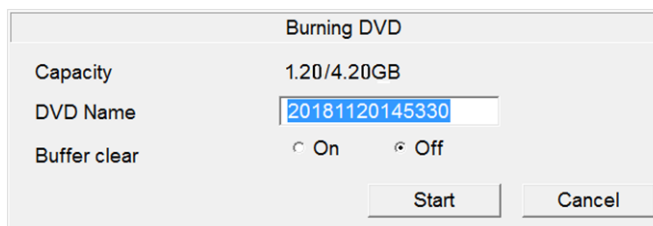
6.4 *Searching for an image using the search screen* on page 176

6.14 Writing to DVD-R

The system can write the data in the DVD-R buffer to a DVD-R disk.

Procedure

1. Select [Burning DVD] from the menu of Tile view or search screen.
2. Enter a name in DVD Name.
3. Select Buffer clear.
 - On: Displays a message after the DVD-R is burned asking you to confirm that you want to clear the DVD-R buffer.
 - Off: The system does not clear the content of the DVD-R buffer after burning the DVD-R.



Burning DVD	
Capacity	1.20/4.20GB
DVD Name	20181120145330
Buffer clear	☐ On ☒ Off
Start Cancel	

4. Select [Start].

→ The data is burned to the DVD-R disk. The progress bar shows the progress.

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 Selecting an image from the Tile view to display it in full-screen mode on page 173

6.4 Searching for an image using the search screen on page 176

6.15 Checking free space

You can check the free space on the system hard disk or connected media.

Procedure

1. Select [Disk Remain] in the menu area of the Tile view or the search screen.
 - The free space and total capacity are displayed in the dialog box.
Use [Reload] to refresh the display.
2. Select [OK].
 - The dialog box closes.

Reference information

For details on how to display the Tile view or the search screen, see the following.

6.2.2 Selecting an image from the Tile view to display it in full-screen mode on page 173

6.4 Searching for an image using the search screen on page 176

6.16 Staring an analysis

Use for analyzing selected images or data files.

6.16.1 Analysis launch menus

The following buttons are available on the analysis launch menu.

The following names are defined and used in this manual as follows.

		Touch panel display
	[CHI] Launches CHI analysis.	[CHI Analysis]
	[TDI] Launches TDI analysis.	[TDI Analysis]
	[eTRACKING] Starts eTRACKING-related analysis.	[eTRACKING]
	[3D/4D] Starts 3D/4D analysis.	[3D Reconst.]



[Stress]
Loads stress echo data.

[Stress Echo Load]



[2DTT]
Starts 2D Tissue Tracking analysis.

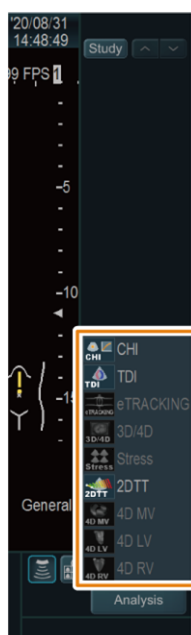
[2DTT Analysis]

6.16.2 Starting an analysis

(1) Starting an analysis from the search screen or Tile view

Procedure

1. Select an image to analyze from a stored image displayed on the search screen or Tile view.
2. Start the desired analysis.
Selecting the desired analysis on the touch panel
Select the desired analysis on the touch panel.
Selecting the desired analysis from the analysis launch menu
 - a. Select [Analysis].
→ The analysis launch menu is displayed.



- b. Select the desired analysis from the analysis launch menu.

(2) Starting an analysis from the thumbnail area

Procedure

1. Select an image to analyze from the thumbnail area.
2. Start the desired analysis.
 - a. Select [Analysis].

- b. Select the desired analysis from the analysis launch menu.

Ending an exam

7.1 Ending an exam and starting the next exam

7.2 Ending an exam and starting the next exam on an MPPS server connection

7.1 Ending an exam and starting the next exam

When performing multiple exams of the same patient, select [End Exam] to end each exam. To end all exams of the same patient, select [New Patient].

Prior confirmation

If necessary, assign [End Exam] to a direct or custom switch.

Procedure

- Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
→ This ends the ongoing exam and displays the ID screen for entering new information.
- Select [End Exam]. Alternatively, select the [Patient] tab on the touch panel and then select [End Exam].
→ This ends the exam and opens the ID screen with the patient information still displayed.

The following is carried out when ending an exam.

- If an MPPS server is set, the MPPS dialog box appears when ending the exam to notify the user that the exam has ended.
- The Structured Report(SR) created during an exam or the ongoing measurement results are converted to the DICOM SR format and sent to the DICOM SR server.
- Images recorded during the exam are sent to the image server.
NOTE: Make sure in advance that the destination server is selected. If no destination server is selected, data will not be sent.
- If a local printer and network printer are connected, images are printed by the divided number of sheets. If the number of image printouts at the end of the exam does not meet the required number of divided sheets, follow the message to force printing.
NOTE: A network connection must be configured to connect to a work list server, MPPS server, or DICOM SR server. For further details, contact the hospital's network administrator.
NOTE: Presets have to be configured for functions like auto-converting and sending images to a DICOM SR server and/or sending images.

7.2 Ending an exam and starting the next exam on an MPPS server connection

When connected to the MPPS server, the server is notified when the exam ends or is stopped.

Prior confirmation

To send an image to the DICOM Server when the examination ends, set All Images of Study to On in the preset ([Preset Setup] > [SystemPreset] > [DICOM] > [Server/Worklist]). To automatically send DICOM SR, turn On Auto create & transfer SR file when the New Patient operation is generated. of SR Auto Creation in the preset ([Preset Setup] > [SystemPreset] > [DICOM] > [SR]).

If necessary, assign [End Exam] to a direct or custom switch.

7.2.1 Ending an exam

The MPPS server is notified that the exam finished, and the next exam starts.

Procedure

1. Press the [New Patient] key. Alternatively, select the [Patient] tab on the touch panel and then select [New Patient].
If there are multiple exams for the same patient
Select [End Exam]. Alternatively, select the [Patient] tab on the touch panel and then select [End Exam].
→ The MPPS dialog box opens.
2. Select [Completed] from Performed Procedure Step Status.
3. Select [OK].
→ This notifies the MPPS of the end of the exam and displays the ID screen for entering new information.
4. Enter the next patient information.
Performing the next exam on the same patient
Select the exam information for that patient from the Work List tab.

7.2.2 Interrupting an exam

The MPPS server is notified of the interruption of the exam and makes it possible to resume the exam later.

Procedure

1. Display the MPPS dialog box.
 - Press the [New Patient] key.
 - From the touch panel, select [New Patient] or [End Exam].
2. Select [Discontinued] from Performed Procedure Step Status.
3. Select the reason for the interruption from Performed Procedure Step Description Reason Sequence.
4. Select [OK].
→ Notification of the exam interruption is sent to the MPPS server and the ID screen for entering new information opens.

5. Enter the next patient information.

Resuming an exam

Re-select the same patient information from the Work List tab.

(1) Reasons for interrupting an exam

[Doctor cancelled procedure:]	The doctor discontinued the exam.
[Equipment failure:]	The system failed.
[Incorrect procedure ordered:]	The wrong exam was scheduled.
[Patient allergic to media/contrast:]	The patient was allergic to the contrast medium.
[Patient died:]	The patient died.
[Patient refused to continue procedure:]	The patient refused to continue the exam.
[Patient taken for treatment or surgery:]	The patient left for treatment or surgery.
[Patient did not arrive:]	The patient did not come for the exam.
[Patient pregnant:]	The patient was pregnant.
[Change of procedure for correct charging:]	The exam was changed to reflect treatment billing.
[Duplicate order:]	There was a duplication of orders.
[Nursing unit cancel:]	The nursing unit canceled the exam.
[Incorrect side ordered:]	The additional order was not clearly defined.
[Discontinued for unspecified reason:]	Discontinued for unspecified reason
[Incorrect worklist entry selected:]	The entry in the work list was incorrect.
[Patient condition prevented continuing:]	The patient's condition worsened.
[Equipment Change:]	The system was modified.

Managing patient data

NOTE: If user authentication is set, the operations in this chapter are limited to users with Level 1 access permissions.

- 8.1 Patient Data Management screen
- 8.2 Importing patient information
- 8.3 Exporting patient information
- 8.4 Deleting patient information
- 8.5 Editing patient information

8.1 Patient Data Management screen

You can search for and edit the data of patients who have been examined.

Procedure

- Select Data Management at the bottom left of the ID screen.
→ The following Patient Data Management screen is displayed.

The screenshot shows the Patient Data Management interface. At the top, there is a search section (I) with an 'Exit' button. Below it are input fields for 'Patient ID', 'Name', 'Target Media' (a dropdown menu currently showing 'Local HDD'), 'File Name', and a date range '(From) / /' to '(To) / /'. The middle section (II) is titled 'Search Result' and contains a table with columns: 'Patient ID', 'Name', 'Exam Performed Date', 'Study ID', and 'Lock'. The table body is currently empty. The bottom section (III) is a control bar with buttons: 'Select All', 'Deselect All', 'Edit', 'Delete', 'Import from Media', 'Write to Media', and 'Optimize Database'.

(I) Search area

(II) Search results list area

(III) Control area

(I) Search area items

Item name	Description of item
Search	Starts a search using the specified conditions. The search results appear in the search results list.
Patient ID	Enter the patient ID to be used as the search condition.
Name	Enter the patient name to be used as the search condition.
Target Media	Select the media to search. Media that can be selected includes [Local HDD] and USB-connected media.
File Name	If the search target is USB-connected media, the selected file name is displayed.
(From) - (To)	Enter the examination date to be used as the search condition. You can set the date by entering text or by specifying it from a calendar.

(II) Search results list area items

Item name	Description of item
Patient ID	Displays the patient ID.
Patient Name	Displays the patient name.
Exam Performed Date	Displays the exam date.

Item name	Description of item
Study ID	Displays the study ID.
Lock	Image data that has been locked will appear as "locked".
****Records	Displays the number of searched patient information items.

(III) Control area

Item name	Description of item
Select All	Select all data shown in the search results list.
Deselect All	Deselects all data shown in the search results list.
Edit	Displays the ID editing screen for the patient selected in the search results list.
Delete	Deletes patient data for the patient selected in the search results list. NOTE: The image data and measurement data for the selected patient are deleted at the same time.
Import from Media	Imports patient information from USB-connected media into the system.
Write to Media	Exports patient information from the system to USB-connected media.
Optimize Database	Updates the patient information database on the system or USB-connected media.

8.2 Importing patient information

You can read patient information from USB-connected media to the system hard disk.

NOTE: Files that can be imported are limited to database files exported using the system's Data Management function.

NOTE: The processing time changes according to the number of selected patient information items. We recommend that you import only the necessary patient information.

Procedure

1. Select Data Management at the bottom left of the ID screen.
2. Select the USB-connected media from Target Media.
→ A File List is displayed.
3. Select an applicable file.
4. Select the patient information to import.
 - a. Set the search conditions.
To search all patient information:
Leave the search conditions empty.
 - b. Select [Search].
 - c. Select a patient from the search results list.
To select all displayed patient information:

Select [Select All].

5. Select [Import from Media].

NOTE: The patient information on the system hard disk is overwritten.

If you import a database file that was saved in a different system and the database file at the import destination includes information about the same patient, information might be incorrectly mapped. In such a situation, manually delete the information about the same patient in the system before you import the database file.

→ Processing starts and the following message is displayed: "Now writing... Do not turn off the system."

6. When the processing is complete, select [Exit] and restart the system.

8.3 Exporting patient information

You can write patient information to USB-connected media from the system hard disk.

NOTE: Exported files are database files. To view the contents, use the system Data Management function to import the files.

Procedure

1. Select Data Management at the bottom left of the ID screen.
2. Select Local HDD from Target Media.
3. Select the patient information to export.
 - a. Set the search conditions.

To search all patient information:
Leave the search conditions empty.
 - b. Select [Search].
 - c. Select a patient from the search results list.

To select all displayed patient information:
Select [Select All].

NOTE: Export takes the least time if you search for all patient information and then select all of the displayed patient information.
4. Select [Write to Media].

→ A dialog box is displayed.
5. In File Name, enter the name of the file to which patient information will be written. Alternatively, select the file from the File List.
6. Select [OK].

8.4 Deleting patient information

You can delete patient information from USB-connected media or the system hard disk.

NOTE: When deleting patient information from the system hard disk, the applicable images and measurement results are also deleted.

Procedure

1. Select Data Management at the bottom left of the ID screen.
2. Select Target Media.
If USB-connected media is selected
Select File Name from the dialog box.
3. Select the patient information to delete.
 - a. Set the search conditions.
To search all patient information:
Leave the search conditions empty.
 - b. Select [Search].
 - c. Select a patient from the search results list.
To select all displayed patient information:
Select [Select All].
4. Select [Delete].
→ The following message appears: "Are you sure you want to delete the selected data? Both waveform data and stored images will be deleted."
5. Select [OK].
When all patient data has been selected in step 3
The following message appears: "You are about to delete all study data. Deletion once started cannot be interrupted. Do you still want to delete data?"
Select [OK].
NOTE: If the search results list contains locked patient information to be deleted, a confirmation message appears. Select "Yes, delete all" to delete locked patient information as well.

8.5 Editing patient information

You can edit the patient information that is on the system hard disk.

NOTE: Patient information can only be edited by persons logged in with user authentication level 1.

Procedure

1. Select Data Management at the bottom left of the ID screen.
2. Select Local HDD from Target Media.
3. Select patient information to be edited.
 - a. Set the search conditions.
To search all patient information:
Leave the search conditions empty.
 - b. Select [Search].
 - c. Select a single patient from the search results list.
4. Select [Edit].

- The ID editing screen is displayed.
- 5. Edit the patient information (Patient ID, Name, Gender, Date of Birth, Accession#).
- 6. Select [OK].
 - The selected patient information is updated.

Touch panel menus

- 9.1 Types of menus
- 9.2 Direct switches
- 9.3 Function menus

9.1 Types of menus

NOTE: For details about how to select a menu, see "Basic controls" in this manual.



Touch panel display example

(1) Direct switches, (2) tabs, (3) Function menus

Menus are broadly classified into direct switches (1 in figure above) and function menus (3 in figure above).

Selecting a direct switch starts the corresponding function.

Function menus (3 in figure above) group modes and functions into tabs for display.

You can assign functions to direct switches and the function menu with input device presets.

Reference information

1.2.1 Touch panel menus on page 26

10.7.4 Assigning functions on page 343

9.2 Direct switches

This section explains functions that can be assigned to direct switches.

The functions shown in this section can be assigned to custom switches, foot switches, or the custom keyboard (F1 to F12 keys).

B

Menu name	Description
Assist Line	Displays and hides the lines for a head-case scale.
Auto-optimizer	Starts the auto optimization process.
Auto-optimizer Reset	Resets the auto optimization process.
Auto FHR+	Starts Auto FHR+.
BCF (B)	Applies or removes the BCF image filter if the [HI REZ] setting is On.
Bottom Display	In 360° radial display, the lower 180° portion is displayed.

Menu name	Description
Brightness Level	Switches the target brightness value between Auto and Manual.
Compound	Starts or ends the compound display.
Compound #	Changes the number of added compound images (# is 1 or 2).
Dual	Switches to the dual-screen view of the tomographic image, or switches the active image in the dual-screen view.
FH Sound (FHR)	Enables or disables a function that sounds a beep in synchronization with the peak of a heart rate waveform if Auto FHR+ is enabled.
HI Framerate (B)	Sets the high frame rate display for B mode images. NOTE: This menu cannot be used together with DFI.
HI REZ	Starts or ends HI REZ.
Invert L/R	Inverts the B mode image laterally.
Invert U/L	Inverts the B mode image vertically.
Left Display	In 360° radial display, the left 180° portion is displayed.
Needle Emphasis	Improves the visibility of the puncture needle echo.
NNR Type	Select the type of NNR.
Panoramic View	Starts or ends Panoramic View.
Persist. Type (B)	Configures the method of correlation processing (Persistence) between image frames.
Plane	Switches the cross-section with a 1-connector or 2-connector biplane probe if a real-time biplane is not running.
Plane +	A biplane probe that enables simultaneous switching between a cross-sectional plane and the current screen.
Puncture Depth Display	Displays or clears a mark that displays the distance from the puncture point at any chosen position along the puncture guide line.
Puncture Guide Line	Displays or hides the puncture guide line.
Puncture Link (NE)	When the linear probe is used and [Needle Emphasis] is set to On, Graphic Line 1 is displayed as perpendicular to the puncture guide line as possible.
Quad	Switches to a tomographic image in the quad-screen view. Switches the active image in the quad-screen view.
Real-time Biplane	Starts or ends a real-time biplane.
Reference Display(Zoom)	Displays the reference image when zooming.
Reset Brightness	Resets the automatically-acquired average brightness value.
Right Display	In 360° radial display, the right-hand 180° portion is displayed.
Scan Area	Sets the B mode image visual field. Use the trackball to change the visual field. Use the [Enter] key to switch the scaling and movement of the B mode image visual field.
Texture	Switches the Texture between [Smooth] and [Sharp].
TGC	Switches the TGC slider between Depth Fixed and Window Fixed.
TGC Enhancement	Sets the following to be used at application startup: the B mode gain and color flow gain optimization in the depth direction.

Menu name	Description
TGC Reset	Resets the TGC settings when the image is frozen or when playing back an image saved in Raw format. When reset, each [TGC] knob is set to the 0 dB position.
THI	Displays a B-mode image by using the Harmonics method. Either "FmT", "WbT", or "HdT" is displayed as the frequency information.
Top Display	In 360° radial display, the upper 180° portion is displayed.
Trapezoidal Scanning	Starts or ends trapezoidal scanning.
eFocusing	Sets whether the transmission aperture synthesis processing method (eFocusing) for B mode images is to be used when the application starts. NOTE: This menu cannot be used together with DFI.
Vertical Shift	Moves the B-mode image vertically in relation to the image display area on the monitor. Use the trackball to move it vertically.
Wide Scanning	Starts or ends wide scanning.

D

Menu name	Description
Auto Angle Correction	Automatically sets the correction angle, based on color information.
CW	Switches to the dual-screen view of the tomographic image and CW mode.
Dop Cursor	Displays the D cursor on the tomographic image.
Dop Cursor Assist	Sets the sample volume to an appropriate position.
Doppler Auto Trace	Starts or ends Doppler Auto Trace.
Dual Gate Doppler	Displays two D cursors.
Freeze Trigger	If On is set, displays the trace line and measurement result when the image is frozen. If Off is set, hides the trace line and measurement result when the image is frozen.
Full M/D	If On is set, displays the sweep image (M, PW, CW, TD-PW) in the single-screen view. If Off is set, displays this in the dual-screen view with a tomographic image.
Invert Spectrum	Inverts the Doppler image centered on the baseline.
Mean Trace	On displays the mean trace line of the Doppler waveform during Doppler Auto Trace. NOTE: You need to set Vm of Display Item to On. Off hides the mean trace line of the Doppler waveform during Doppler Auto Trace.

Menu name	Description
Simultaneous (PW)	If On is set, activates both screens in tomographic and sweep image (PW or TD-PW) in the dual-screen view. If Off is set, activates only the tomographic image in tomographic and sweep image (PW or TD-PW) in the dual-screen view. In addition to turning sweep image single-screen view (PW or TD-PW) On or Off, tomographic and sweep image (PW or TD-PW) dual-screen view can also be switched.
TD-PW	Starts the TD-PW mode.
Trace Locate	Moves or stops moving the display location of the Doppler Auto Trace measurement results.
Trace Smooth	Switches the smoothness level of the trace line.
Trans. Menu Auto Display	Displays the transfer menu when the Doppler Auto Trace measurement result is displayed.

Color

Menu name	Description
Accumu. Imaging	If On is set, color pixels are displayed in an overlay display in real time. If Off is set, color pixels are not displayed in an overlay display in real time
Capture Imaging	If On is set, color pixels are displayed in an overlay display after an image is frozen If Off is set, color pixels are not displayed in an overlay display after an image is frozen.
CF	Starts CF mode.
DFI	Starts DFI mode.
Directional	Displays or hides the blood flow direction in PD mode, eFlow mode, or DFI mode.
Dual CF	If On is set, simultaneously displays the B mode image on the left and the color Doppler mode image on the right in the dual-screen view. If Off is set, displays a tomographic image in the single-screen view.
Dual DFI	On starts DFI mode and displays two screens simultaneously, with the B mode image on the left and the DFI image on the right. If Off is set, displays a tomographic image in the single-screen view.
eFlow	Starts eFlow mode.
HI Framerate (Col)	Sets the high frame rate display for color Doppler mode images NOTE: This menu cannot be used together with DFI.
Invert Color Map	Inverts color polarity.
PD	Starts PD mode.
TDI	Starts TDI mode.
Texture(Color)	Switches the Texture(Color) between [Smooth] and [Sharp].

Other

Menu name	Description
Archive Group 1	Outputs to the destination assigned to this menu.
Archive Group 2	Outputs to the destination assigned to this menu.
Archive Group 3	Outputs to the destination assigned to this menu.
Archive Group 4	Outputs to the destination assigned to this menu.
Archive Group 5	Outputs to the destination assigned to this menu.
B/D Format	Switches between left/right display and upper/lower display for B/D mode.
B/M Format	Switches between left/right display and upper/lower display for B/M mode.
Body Mark	Sets to display or hide body marks.
Caliper	Starts the basic measurement assigned to this key.
Cine Reset	If you select this item when images are displayed in real time, the images in the cine memory are deleted, and the displayed images are saved to the cine memory when this item is selected. If you select this item when video images are being saved, the processing of saving the video images stops.
Cine Search	Changes the trackball functions to Search/Scroll.
Comment	Displays the pointer in the scanning screen or ends comment input.
Counter (A)	Starts counting up and displays the counter on the top left of the screen.
Counter (B)	Starts counting up and displays the counter on the top left of the screen.
Current View	Switches to the scanning screen.
Delete All	Deletes all images.
Disk Remain	If On is set, displays the remaining capacity of the media. If Off is set, hides the remaining capacity of the media.
End Exam	Ends the current examination and moves to the next examination of the same patient.
Exit Protocol	Ends the currently executed protocol.
EXT	Displays images from external connected media.
Find	Displays the search screen.
Freeze	Switches freeze On and Off.
Full Screen View	Displays the selected image in full screen.
Guide View	Displays or hides a reference image when the protocol is started.
ID	Displays patient data currently under examination on the patient data screen.
Image Compare	Displays the selected image on the left and the scan image on the right in the dual-screen view.
Invert Link	Links [Invert Color Map] to [Invert Spectrum].
KB	Displays or hides the virtual keyboard on the touch panel.
Load Raw Data	Loads Raw data into Cine memory and plays it back.

Menu name	Description
Logoff	Logs off from the user authentication for the system.
M1: *****	Starts the menu item that was assigned with the measurement preset.
M2: *****	Starts the menu item that was assigned with the measurement preset.
M3: *****	Starts the menu item that was assigned with the measurement preset.
M4: *****	Starts the menu item that was assigned with the measurement preset.
Manual	Displays the instruction manual selection menu screen.
Manual Raw Store	Saves videos in Raw format regardless of Data Format (Movie) settings.
Measurement	Displays the measurement menus.
New Patient	Ends the current examination and displays the ID screen.
Next Image	Switches to the next selected image in full screen view or comparison display.
Next View	Moves the View forward by one.
Original	Displays the Raw playback image in the state it was in before image adjustment.
Parameter Display	Displays or hides scanning screen parameters.
Patient	Displays the Patient tab on the touch panel.
Pause Protocol	If On is set, pauses the protocol. If Off is set, resumes the protocol.
Playback	Plays back cine memory images or videos (excluding those in PC format) or stops that playback.
Pointer	Displays the pointer on the scanning screen.
Power Limit Override	Cancels or adds acoustic output restrictions for fetal observation.
Prev Image	Switches to the previously selected image in full screen view or comparison display.
Prev. View	Moves the View backward by one.
Print Queue	Prints print files in the print queue folder.
Probe/Preset	Display menus for switching between probes and applications.
QSS A	Applies QSS A presets.
QSS B	Applies QSS B presets.
QSS C	Applies QSS C presets.
QSS D	Applies QSS D presets.
REC	Records to an HD video recorder.
Reset Counter (A)	Resets Counter (A) to 00:00.
Reset Counter (B)	Resets Counter (B) to 00:00.
Restart Store	Starts to save the video images when this item is selected.
Review	Switches to the Tile view.
R-Wave Beep	Plays or mutes beeps when an R-wave is detected.
Send	Sends the active applied measurement results to a report.
Store	Saves the displayed image.

Menu name	Description
T.B.F.	Switches trackball functions.
Teaching File (Video)	Masks patient information when saving a video in Video Clip format to a device other than the system hard disk, or when recording video.
Tile View	Displays a list of images with the same ID as the current patient ID.
Update	Switches the active screen in the dual-screen view of the tomographic image and sweep image.
Video Clip Auto Stop	If On is set, freezes the display after a video clip is saved. If Off is set, returns to real time after a video clip is saved.

Physio

Menu name	Description
ECG Display	Displays or hides ECGs.
ECG Filter	Removes body movement from the ECG.
HR Stability Display	Starts or ends HR Stability display.
Invert ECG Display	Inverts ECG display vertically.
PCG Display	Displays or hides the PCG display.
Pulse Display	Sets to display or hide the pulse display.
Resp Display	Sets to display or hide the Resp display.
R-R Detection	Starts or ends R-R detection.
R-R End Frame	Displays the frame of the detected sector immediately after the time phase bar.
R-R Interval(ms)	Displays or hides the R-R interval of the detected heartbeat.
R-R Start Frame	Displays the frame of the detected sector immediately preceding the time phase bar.
Tachy/Brady Filter	If this item is set to On, the heartbeats for which the R-R interval is outside the range from 0.6 to 1 second in the target sectors are excluded from the displayed results of R-R interval detection. If this item is set to Off, the results of R-R interval detection performed within the range set with RRp/RRpp are displayed.

DSD

Menu name	Description
DSD (ECG)	Starts or ends DSD (ECG) mode.
DSD (Time)	Starts or ends DSD (Time) mode.
DSD Refresh	Refreshes the slow motion display.

FAM

Menu name	Description
Active FAM disp. off	Hides the active FAM cursor.
Center Independence	If On is set, releases the links between FAM cursors. If Off is set, links FAM cursors at their center points.

Menu name	Description
FAM	Starts or ends FAM mode.
FAM Cursor Number	Switches the number of FAM cursors between 2 and 3.
PSAX	If On is set, displays multiple FAM cursors fixed at the centers. If Off is set, displays one FAM cursor.
Trace Fit	If On is set, fits the length of FAM cursors to the display range of the B mode image. If Off is set, displays the data by using a scale that fits [MAG (FAM)].

PinP

Menu name	Description
Freeze	Starts or stops the acquisition of images in the PinP window.
Full	Displays the PinP Window at full size.
Half	Displays the PinP Window at half size.
 Lower Left	Displays a small PinP window on the lower left.
 Lower Right	Displays a small PinP window on the lower right.
PinP Window	Sets to display or hide the PinP window.
Small	Displays the PinP window at a small size.
 Upper Left	Displays a small PinP window on the upper left.
 Upper Right	Displays a small PinP window on the upper right.

Because the following functions cannot be assigned to the function menus in modes other than the above, assign them to direct switches.

For details about the functions that can be assigned to function menus, see each of the separate instruction manuals.

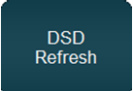
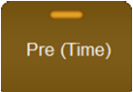
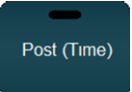
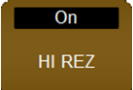
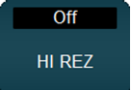
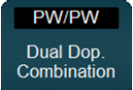
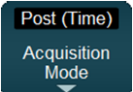
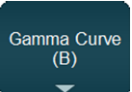
Menu name	Description
2DTT Analysis	Starts 2D Tissue Tracking analysis.
3D/4D Selection	Restores the status that existed before 3D acquisition.
4D Mode	Starts 4D mode.
CHI Analysis	Launches CHI analysis.
Echo Tracking	Starts eTRACKING.
Elastography	Starts real-time tissue elastography.
FMD	Starts FMD.
HI DEF 3D Mode	Restores the status that existed before images were acquired in HI DEF 3D mode.
RVS	Starts real-time virtual sonography.
Select (3D)	Switches the active image in 3D display.
Shear Wave Meas.	Starts Shear Wave Measurement.
SWE	Starts Shear Wave Elastography.

Menu name	Description
STIC Mode	Restores the status that existed before images were acquired in STIC mode.
Stress Echo	Starts Stress Echo mode.
TDI Analysis	Launches TDI analysis.
WI	Starts Wave Intensity.

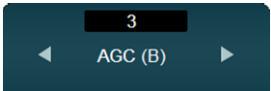
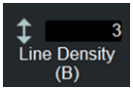
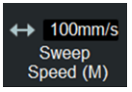
9.3 Function menus

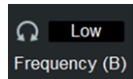
This section explains each function menu item mentioned in this manual as well as other related information. Items are divided into the eight categories of B, M, D, Color, Physio, D.S.D, FAM, P inP and Other, depending on the display mode and function. These classifications are used with Input Device the in presets. Find/Tile is a function menu displayed in the search screen and Tile View. For details about the analysis menu and other function menus, see the separate manuals "Advanced Operations 1", "Advanced Operations 2", and "Advanced Operations 3".

Types assigned to the 1st to 3rd tiers of the function menu

Type	Explanation	Display example
One-shot	You can activate these functions by pressing the appropriate button.	
Alternative	You can activate these functions by pressing the appropriate button. Selecting another function in the same group turns Off the current function.	 
On/Off	Press to turn On/Off.	 
Rotation	Switches between two or more options when selected.	 
Expand	Select this to open expanded menus.	 

For a multitype function menu, the displayed information differs depending on the display position of the menu.

Position	Explanation	Display example
1st step to 3rd step	Select right or left to choose values or options. Options are displayed at the width of both the left and right menus.	
4th step	Turn the multi rotary encoder under the menu in the direction of the arrow to select a numerical value or option.	 

Position	Explanation	Display example
5th step (bottom step)	Turn the multi rotary encoder under the menu to select a numerical value or option.	

9.3.1 Function menus: B

This section explains function menus classified as B mode.

Menu item	Options	Item
AGC (B)	0	Cancels auto gain correction.
	1 to 7	Applies auto gain correction. As the value increases, so does the correction level. AGC (Auto Gain Control) analyzes brightness in the depth direction, suppressing spikes in echo level.
Angle (Compound)	5deg to 30deg	Changes the compound steering angle in 5-degree increments. NOTE: The maximum steering angle value varies depending on the probe.
Angle Reverse (NE)		Reverses the angle of Graphic Line 2 when the linear probe is used and [Needle Emphasis] is set to On.
Angle Select (NE)	-30 deg to 30 deg	Changes the angle of Graphic Line 2 in 5-degree increments when the linear probe is used and [Needle Emphasis] is set to On. NOTE: The maximum angle value varies depending on the probe.
ANR	Off	Disables ANR.
	1 to 9	Sets the degree of ANR effect.
Assist Line	Off	Hides assist lines.
	On	Displays assist lines.
Auto-optimizer		Starts Auto Optimization in B mode or D mode.
Auto-optimizer Reset		Resets the auto optimization process. Restores to the state immediately before Auto Optimization.
Auto FHR+	Off	Ends Auto FHR+.
	On	Starts Auto FHR+.
BCF (B)	Off	Removes the BCF image filter.
	On	Applies the BCF image filter that clarifies the edges of structures. NOTE: This function is available if the [HI REZ] setting is On.
Beam Steer (B)	-30 to 30	Changes the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. NOTE: The steering angle range varies depending on the probe.
Beam Steer [Skip] (B)		Switches between the angle set in [Beam Steer (B)], the inverted angle, and the 0° position.

Menu item	Options	Item
Brightness Level	Auto	Obtains the target brightness value automatically.
	Manual	Uses [Brightness Level (Manual)] to set the target brightness value.
Brightness Level (Manual)	40 to 80	Changes the target brightness value when [Brightness Level] is set to [Manual].
Cardiac Cycles #(FHR)	1 to 10	Sets the number of heartbeats used to calculate the average heart rate if Auto FHR+ is enabled.
Carving Imaging	Off	Disables NNR.
	1 to 9	Changes the combination of NNR type and level. The strength of artifact and noise reduction increases in order from Low, Mid, and High of Type E, then Low, Mid, and High of Type C, and finally Low, Mid, and High of Type D.
Compound	Off	Ends compound display.
	On	Starts compound display. NOTE: Applicable probes are the linear electric probe and the convex electric probe.
Compound #	1	Switches the number of Compound additional layers to Type 1.
	2	Switches the number of Compound additional layers to Type 2.
Dynamic Range (B)	40 to 90	Changes the dynamic range of B mode images.
Echo Enh. (B)	0	Removes the echo enhancement image filter.
	1 to 7	Creates an image from a weak signal by filling gaps in the scan direction and applying a filter to lower the brightness in low-bright areas and increasing it in high-bright areas.
Emphasis Level(NE)	Low, Mid, High	Allows you to adjust the degree of emphasis for improving the visibility if [Needle Emphasis] is set to On when a convex probe is used.
FH Sound(FHR)	On, Off	Enables or disables a function that sounds a beep in synchronization with the peak of a heart rate waveform if Auto FHR+ is enabled.
Frequency (B)	Low, LMid, Mid, HMid, High	Changes the ultrasound frequency. NOTE: The configurable range varies depending on the probe.
Graymap (B)	1 to 10	Applies the selected gray map.
Grayscale Enh. (B)	Off, Low, Mid, High	Adjusts the balance between low brightness and high brightness in the gray scale of a B mode image.
HI Framerate (B)	Off	Ends B mode image display at high frame rate.
	On	Displays a B mode image at a high frame rate. NOTE: You cannot use both HI Framerate (B) and eFocusing. While HI Framerate (B) is enabled, if you select eFocusing, only eFocusing is enabled. NOTE: This menu cannot be used together with DFI.

Menu item	Options	Item
HI REZ	Off	Removes the HI REZ image filter.
	On	Applies an image filter that maintains the edges of structures while reducing speckle noise.
HI REZ Level	1 to 8	Changes the HI REZ image filter level when [HI REZ] is On. Changes the BCF image filter level when [HI REZ] is On and [BCF] is On.
Image Rotation	0 deg, 90 deg, 180 deg, 270 deg	Selects the angle to which to rotate the B mode image (clockwise). In Panoramic view, the image rotates in the range from [0 deg] to [350 deg] in 10-degree increments.
Invert L/R	Off	Cancels inversion of the display image.
	On	Inverts the image laterally.
Invert Steer (B)		Switches between the angle set in [Beam Steer (B)] and the inverted angle.
Invert U/L	Off, On	Inverts the B mode image vertically.
LE Reduct.(B)	0 to 70	Sets the level of suppression in 1-step increments of hypoechoic areas of B mode images.
Line Density (B)	1 to 8	The higher the level, the higher the line density, which improves lateral resolution. The lower the level, the lower the line density, which improves the frame rate. NOTE: The configurable range varies depending on the probe.
Needle Emphasis	Off, On	Improves the visibility of the puncture needle echo.
NNR Type	A	Reduces artifacts in B mode images.
	B	Reduces artifacts and noise in heart chambers and vessels.
	C	Has a stronger effect than level B, reducing more noise and a greater number of artifacts in images.
	D	Has a stronger effect than level C, reducing more noise and a greater number of artifacts in images.
	E	Has a weaker effect than Type C, reducing less noise and fewer artifacts in images.
NNR	Off	Disables NNR.
	Low, Mid, High	Sets the degree of NNR effect.
Omni Plane Angle Setting	-45 deg to 45 deg	Changes the transducer angle, in 5-degree increments. NOTE: For details about compatible probes, see the separate manual "Instructions for Use".
Panoramic View	Off	Ends Panoramic View.
	On	Starts Panoramic View.

Menu item	Options	Item
Persist. Level (B)	0	Cancels correlation processing (persistence) between image frames.
	1 to 7	Changes the level of correlation processing (persistence) between image frames.
Persist. Type (B)	Manual	Sets to do correlation processing (persistence) between image frames depending on the number of frames.
	Auto	Sets to do correlation processing (persistence) between image frames depending on the frame rate and the number of frames. NOTE: When [Compound] is On, [Auto] is not available.
Plane	T	Switches the display plane when using the single-screen view with real time biplane. Displays the lateral section when using a 1-connector-type biplane probe.
	L	Switches the display plane when using the single-screen view with real time biplane. Displays the longitudinal section when using a 1-connector-type biplane probe.
Plane +	T	A biplane probe that enables simultaneous switching between a lateral plane and the current screen.
	L	A biplane probe that enables simultaneous switching between a longitudinal plane and the current screen.
PRF (B/M)	Low, Mid, High	Changes the pulse repetition frequency. The upper limit on pulse repetition frequency increases in the order [Low], [Mid], [High].
Puncture Adapter Select		Displays a dialog box for selecting the puncture adapter.
Puncture Angle Select	**	Changes the puncture angle, the distance from the ultrasonic irradiation area to the puncture guide line, or the active puncture guide line. NOTE: The options and the puncture guide line positions vary with the probe.
Puncture Depth Display	Off	Hides depth measurement marks.
	On	Displays depth measurement marks.
Puncture Disp. Pattern	Single, Multi	Switches the display pattern of the puncture guide line to show a single guide line or to show multiple guide lines.
Puncture Guide Line	Off	Hides the puncture guide line.
	On	Displays the puncture guide line.
Puncture Guide Line Color	Green	Displays the puncture guide line in green.
	White	Displays the puncture guide line in white.

Menu item	Options	Item
Puncture Link (NE)	Off, On	When the linear probe is used and [Needle Emphasis] is set to On, Graphic Line 1 is displayed as perpendicular to the puncture guide line as possible.
Real-time Biplane	Off	Ends real-time biplane.
	On	Displays in real time biplane
Reference Display(Zoom)	Off, On	Switches between displaying and hiding the reference image when zooming.
Reset Brightness		The obtained target brightness value is discarded when [Brightness Level] is set to [Auto].
Scan Area	25% to 100%	Sets the B mode image visual field.
Smooth/Enh. (B)	0	Disables the Smooth/Enhance(B) filter.
	-8 to -1	Changes the level of smoothing.
	1 to 8	Change the level of edge enhancement.
Sound Speed	1400 to 1650	Adjusts the speed of sound adjustment level corresponding to the receive focus delay time. [1540] is the standard speed of sound.
Sweep Speed (B)	40.0 mm/s 50.0 mm/s 66.7 mm/s 100 mm/s 133 mm/s 200 mm/s 300 mm/s	Change the sweep speed (mm/s) of vital signs on tomographic images.
Texture	Smooth	Displays smoother images.
	Sharp	Displays shaper images.
TGC	Fixed	Assigns a fixed depth to each [TGC] slider. The depth corresponding to each [TGC] slider does not change in response to changes in the display range.
	Variable	Divides the depth of the whole screen into equal parts and assigns one to each [TGC] slider. The depth corresponding to each [TGC] slider changes in tandem with the display range.
TGC Enhancement	Off	Sets so the shallow B gain is not modified. Cancels gain optimization in the depth direction of color Doppler mode images.
	On	Sets so the shallow B gain is modified to a great degree. Sets gain optimization in the depth direction of color Doppler mode images. NOTE: For details about compatible probes, see the separate manual "Instructions for Use".

Menu item	Options	Item
TGC Reset		Resets the TGC settings when the image is frozen or when playing back an image saved in Raw format. When reset, each [TGC] knob is set to the 0 dB position.
THI	Off	Ends B mode image display with the Harmonic method.
	On	Displays a B-mode image by using the Harmonics method. Either "FmT", "WbT", or "HdT" is displayed as the frequency information.
THI Mode	FmT, WbT, HdT	Sets the following to be used at application startup: the method to use when the transmission mode is [Tissue Harmonic].
Time Scale(FHR)	3, 5, 10, 20, 30, 60, 120, 180	Sets the length of the horizontal axis of the heart rate waveform if Auto FHR+ is enabled.
Trapezoidal Scanning	Off	Ends trapezoidal scanning.
	On	Starts trapezoidal scanning. NOTE: The applicable probe is the linear electric probe.
eFocusing	Off	Ends B mode image display that uses the transmission aperture synthesis processing method (eFocusing).
	On	Displays a B mode image by using the eFocusing method. NOTE: This menu cannot be used together with DFI. For details about compatible probes, see the separate manual "Instructions for Use".
Vertical Shift	Off	Ends Vertical Shift.
	On	Moves the tomographic image vertically in relation to the display range.
Wide Scanning	Off	Ends wide scanning.
	On	Starts wide scanning. NOTE: For details about compatible probes, see the separate manual "Instructions for Use".

(1) Alternative menus

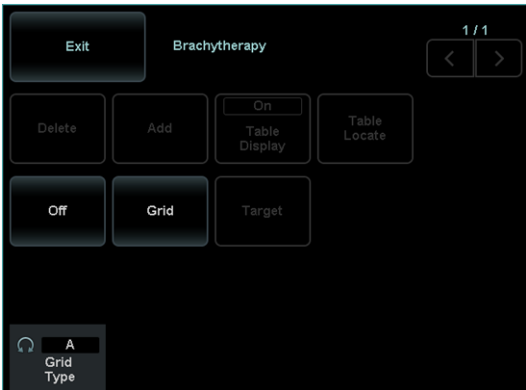
Selects a 180 degrees display position in 360° radial display.

Menu item	Description
Bottom Display	In 360° radial display, the lower 180° portion is displayed.
Left Display	In 360° radial display, the left 180° portion is displayed.
Right Display	In 360° radial display, the right-hand 180° portion is displayed.
Top Display	In 360° radial display, the upper 180° portion is displayed.

(2) Expanded menu

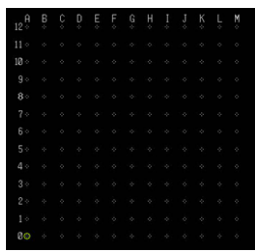
(a) Brachytherapy

NOTE: For details about compatible probes, see the separate manual "Instructions for Use".
Displays the expanded menu for Brachytherapy.

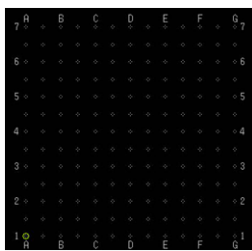


Menu item	Options	Description
Delete		Deletes the selected coordinate from the stored position list.
Add		Adds a coordinate (the position of the circle-shaped mark) to the stored position list.
Table Display	Off	Hides the stored position list.
	On	Displays the stored position list.
Table Locate	Off	Completes movement of the stored position list.
	On	Changes the stored position list to movable status.
Grid Type	A, B, C, D	Displays in the selected grid.

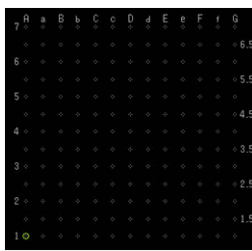
[Grid Type] = [A]



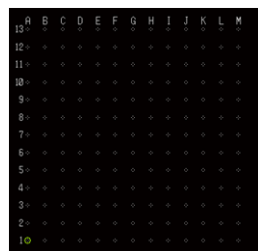
[Grid Type] = [B]:



[Grid Type] = [C]:



[Grid Type] = [D]:



The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
Off	Hides the grid, target, and stored position list.
Grid	Displays the grid.
Target	Displays the target.

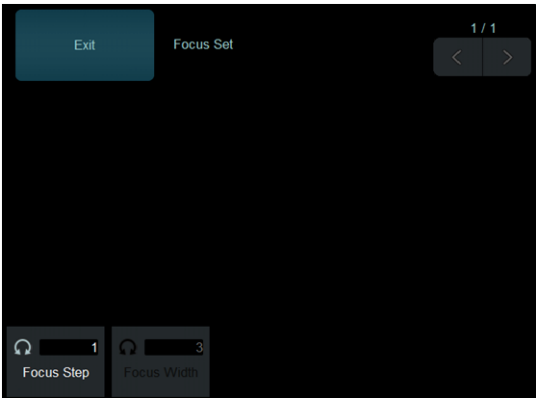
(b) Color Map (B/M)



Menu item	Description
A to O	Colors the image with the selected color map.

(c) Focus Set

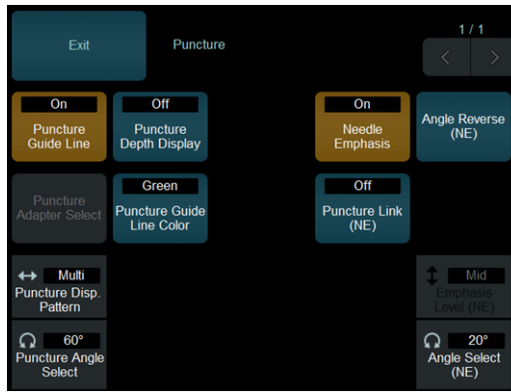
Displays the expanded menu for Focus Set.



Menu item	Options	Description
Focus Step	1 to 4	Changes the number of focus steps in the B mode image.
Focus Width		Changes the combination of focus positions in the B mode image. NOTE: The configurable range varies depending on the probe.

(d) Puncture

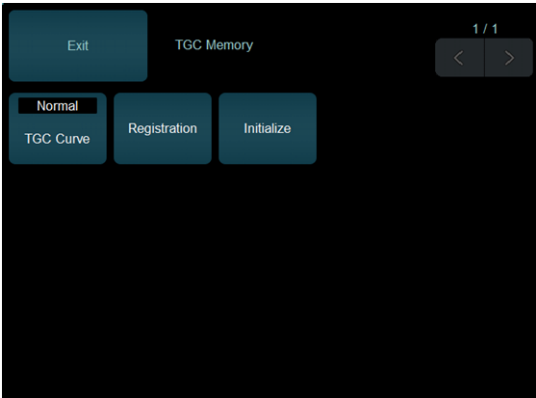
Displays the expanded menu for puncture.



Menu item	Options	Description
Puncture Guide Line	Off	Hides the puncture guide line.
	On	Displays the puncture guide line.
Puncture Depth Display	Off	Hides depth measurement marks.
	On	Displays depth measurement marks.
Puncture Adapter Select		Displays a dialog box for selecting the puncture adapter.
Puncture Guide Line Color	Green	Displays the puncture guide line in green.
	White	Displays the puncture guide line in white.
Puncture Disp. Pattern	Single, Multi	Switches the display pattern of the puncture guide line to show a single guide line or to show multiple guide lines. NOTE: The puncture guide line positions vary depending on the probe or adapter.
Puncture Angle Select	**	Changes the puncture angle, the distance from the ultrasonic irradiation area to the puncture guide line, or the active puncture guide line. NOTE: The options and the puncture guide line positions vary with the probe.
Needle Emphasis	Off, On	Improves the visibility of the puncture needle echo.
Angle Reverse (NE)		Reverses the angle of Graphic Line 2 when the linear probe is used and [Needle Emphasis] is set to On.
Puncture Link (NE)	Off, On	When the linear probe is used and [Needle Emphasis] is set to On, Graphic Line 1 is displayed as perpendicular to the puncture guide line as possible.
Angle Select (NE)	-30deg to 30deg	Changes the angle of Graphic Line 2 in 5-degree increments when [Needle Emphasis] is set to On. NOTE: The maximum angle value varies depending on the probe. NOTE: If a convex probe is used, the value that is set for the preset is displayed and the value cannot be changed.
Emphasis Level(NE)	Low, Mid, High	Allows you to adjust the degree of emphasis for improving the visibility if [Needle Emphasis] is set to On when a convex probe is used.

(e) TGC Memory

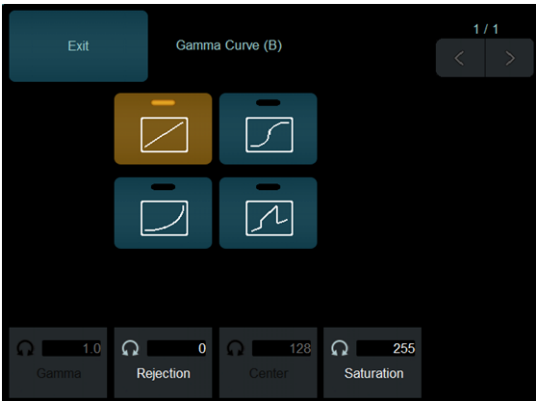
Displays the expanded menu for TGC memory.



Menu item	Options	Description
TGC Curve	Normal	Applies the default to the TGC slider settings.
	Custom	Applies the registered TGC slider position as the center of the slider.
Registration		Applies the current TGC slider position as the center of the slider.
Initialize		Resets the registered TGC slider position to the default.

(f) Gamma Curve (B)

Displays the expanded menu for Gamma Curve.



Menu item	Options	Description
Gamma	-4.0 to 4.0	Changes the gamma value, in 0.1 increments.
Rejection	0 to 255	Changes the location of the rise of the curve.
Center	0 to 255	Changes the location of the center for S-shaped curves.
Saturation	0 to 255	Changes the saturation location of curves.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
	Applies a Linear Type gamma curve.
	Applies an S-Curve Type gamma curve.
	Applies a Parabolic Type gamma curve.
	Applies a Window Type gamma curve.

(g) Lateral Gain Control

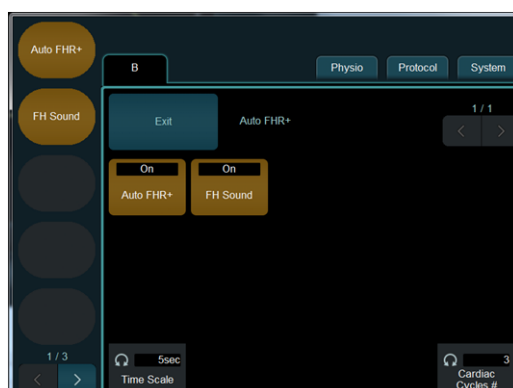
Sets the gain correction for any position in the scanning line direction.

Procedure

- Sets the gain correction of the desired position.
 - a. Select [Lateral Gain Control].
 - b. Adjust the slider position of the corresponding position.
 - The higher the slider position, the higher the sensitivity.
 - To return the slider to its original position (current position), select [Reset].
- Apply a system pattern.
 - a. Select [Lateral Gain Control].
 - b. Select the correction pattern using [LGC Type].

(h) Auto FHR+ Menu

Displays the expanded menu for Auto FHR+.



Menu item	Options	Description
Auto FHR+	Off	Ends Auto FHR+.
	On	Starts Auto FHR+.
FH Sound	Off	Disables a function that sounds a beep.
	On	Enables a function that sounds a beep in synchronization with the peak of a heart rate waveform.

Menu item	Options	Description
Time Scale	3, 5, 10, 20, 30, 60, 120, 180	Sets the time scale (in seconds) of the horizontal axis.
Cardiac Cycles #	1 to 10	Changes the number of heartbeats used to calculate the average heart rate.

9.3.2 Function menus: M

This section explains function menus classified as M mode.

Menu item	Options	Description
AGC (M)	0	Cancels auto gain correction.
	1 to 7	Applies auto gain correction. As the value increases, so does the correction level. AGC (Auto Gain Control) analyzes brightness in the depth direction, suppressing spikes in echo level.
Dynamic Range (M)	40 dB to 90 dB	Changes the dynamic range of M mode images.
Echo Enh. (M)	0	Removes the echo enhancement image filter.
	1 to 7	Creates an image from a weak signal by filling gaps in the scan direction and applying a filter to lower the brightness in low-bright areas and increasing it in high-bright areas.
Enh. Level (M)	1 to 4	Changes the level of edge enhancement on the M mode image.
Graymap (M)	1 to 10	Applies the selected gray map.
Grayscale Enh. (M)	Off, Low, Mid, High	Adjusts the balance between low brightness and high brightness in the gray scale of an M mode image.
LE Reduct.(M)	0 to 70	Sets the level of suppression in 1-step increments of hypoechoic areas of M mode images.
Sweep Speed (M)	40.0 mm/s 50.0 mm/s 66.7 mm/s 100 mm/s 133 mm/s 200 mm/s 300 mm/s	Change the sweep speed (mm/s) of M mode images. This also applies to physiological signals when the B mode image is displayed in the single-screen view after freezing in B/M mode.

(1) Expanded menu

(a) Gamma Curve (M)

Displays the expanded menu for Gamma Curve.



Menu item	Options	Description
Gamma	-4.0 to 4.0	Changes the gamma value, in 0.1 increments.
Rejection	0 to 255	Changes the location of the rise of the curve.
Center	0 to 255	Changes the location of the center for S-shaped curves.
Saturation	0 to 255	Changes the saturation location of curves.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
	Applies a Linear Type gamma curve.
	Applies an S-Curve Type gamma curve.
	Applies a Parabolic Type gamma curve.
	Applies a Window Type gamma curve.

9.3.3 Function menus: D

This section explains function menus classified as D mode (PW and CW).

Menu item	Options	Description
Angle Correct. Reverse		Turn the appropriate multi rotary encoder to reverse the polarity of the correction angle. For example, change to 20° for -20°.
Angle Correction	0° to 80°	Changes the correction angle.
Auto Angle Correction		Automatically sets the correction angle, based on color information.
Average	1 to 15, All	Sets the heart rate used to display measurement results when multiple heartbeats are traced using Doppler Auto Trace.
Baseline Shift (D)	-16 to 16	Shifts the Doppler baseline (0 mm/s) vertically. Shifts up and down, relative to [0] as the image center position.

Menu item	Options	Description
Beam Steer (D)	-30 deg to 30 deg	Changes the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. NOTE: The steering angle range varies depending on the probe.
Beam Steer [Skip] (D)		Switches between the angle set in [Beam Steer (D)], the inverted angle, and the 0° position for the [D] cursor.
Beat Select(Auto Trace)		Changes the position of heartbeat detection by Doppler Auto Trace. NOTE: This menu is enabled when [ECG Display] is set to On.
Dop Cursor Assist		Sets the sample volume to an appropriate position.
Dop Vel./ Baseline Assist	Off	While a D waveform is displayed, the Doppler speed range and Doppler baseline are not automatically adjusted.
	On	While a D waveform is displayed, the Doppler speed range and Doppler baseline are automatically adjusted.
Dop. Gamma	1 to 8	Changes the Doppler waveform contrast and the level of gamma adjustment. Raising the level increases the frequencies to be removed.
Doppler Auto Trace	Off	Ends Doppler Auto Trace and hides the trace line and measurement results.
	On	Starts Doppler Auto Trace.
Dual Dop. Combination	PW/PW	Displays D1 in PW mode and D2 in PW mode using Dual Gate Doppler.
	PW/TDI	Displays D1 in PW mode and D2 in TDI mode using Dual Gate Doppler.
	TDI/TDI	Displays D1 in TDI mode and D2 in TDI mode using Dual Gate Doppler.
Dual Dop. Select	D1	When Dual Gate Doppler is selected, the Doppler image at the D1 cursor is switched to active.
	D2	When Dual Gate Doppler is selected, the Doppler image at the D2 cursor is switched to active.
Echo Enh. (CW)	Off	Sets to not apply contrast between the Doppler waveform and background noise.
	Low, High	Applies contrast between the Doppler waveform and background noise by enhancing the Doppler waveform and reducing background noise. The contrast is greater at [High] than at [Low].
Freeze Trigger	Off	Hides the trace line and measurement result when the image is frozen.
	On	Displays the trace line and measurement result when the image is frozen.

Menu item	Options	Description
Grayscale Enh. (D)	Off, Low, Mid, High	Adjusts the balance between low brightness and high brightness in the gray scale of a Doppler image.
Invert Spectrum	Off	Restores vertical inversion of the Doppler image.
	On	Inverts the Doppler image vertically.
Invert Steer (D)		Switches between the angle set in [Beam Steer (D)] and the reverse angle for the [D] cursor.
LE Reduct. (D)	0 to 30	Sets the suppression level for the hypoechoic area of Doppler waveforms in 1-step increments.
Mean Trace	Off	Hides the mean trace line of the Doppler waveform during Doppler Auto Trace.
	On	Displays the mean trace line of the Doppler waveform during Doppler Auto Trace. NOTE: You need to set Vm of Display Item to On.
Ref. Frequency (D)		Changes the reference frequency (Transmit) when in PW mode display. NOTE: The configurable range varies depending on the probe.
Sample Volume	0.5 mm to 20.0 mm	Changes the sample volume detection width (mm). 0.5 mm to 10.0 mm can be changed in 0.5 mm steps, and 10.0 mm to 20.0 mm can be changed in 1.0 mm steps. Makes the sample volume of the active D cursor the target in Dual Gate Doppler.
Spectrum Resolution	Low	Configures a setting lower than [Middle] for the number of analysis points for Doppler waveform detection. Doppler image detection response becomes faster and it displays a Doppler waveform with good tracking.
	Middle	Changes the number of analysis points for Doppler waveform detection to an intermediate level between [Low] and [High].
	High	Configures to a setting higher than [Middle] for the number of analysis points for Doppler waveform detection. Displays Doppler images with high resolution.
Sweep Speed (D)	40.0 mm/s 50.0 mm/s 66.7 mm/s 100 mm/s 133 mm/s 200 mm/s 300 mm/s	Changes the sweep speed (mm/s) of D mode. This also applies to physiological signals when the B mode image is displayed in the single-screen view after freezing in B/D mode.
TD-PW	Off	Ends the TD-PW mode.
	On	Starts TD-PW mode.

Menu item	Options	Description
Trace Locate	Off	Ends movement of the measurement result display position using Doppler Auto Trace.
	On	Puts the measurement result display position using Doppler Auto Trace into a movable state.
Trace Result	One	Displays the measurement results from a trace of a single heartbeat in Doppler Auto Trace.
	Ave.	Displays the measurement results from a trace of multiple heartbeats in Doppler Auto Trace.
Trace Smooth	Low	Switches the level of trace smoothing of the trace line with Doppler Auto Trace to the minimum.
	High	Switches the level of trace smoothing of the trace line with Doppler Auto Trace to the maximum.
Trace Threshold	-22 dB to 0 dB	Changes the brightness value (dB) at which the trace is detected in Doppler Auto Trace.
Trans. Menu Auto Display		Displays the transfer menu when the measurement result is displayed using Doppler Auto Trace.
Vel. Range (D)	1.26 to 802.08	Changes the PW mode velocity range (vertical axis direction, cm/s). NOTE: The velocity range varies depending on the probe.
	25.07 to 802.08	Changes the CW mode velocity range (vertical axis direction, cm/s). NOTE: The velocity range varies depending on the probe.
Wall Filter (D)	1 to 12	Changes the level for removing unnecessary signals caused by wall movement in order to show just the blood flow signal. Raising the level increases the frequencies to be removed.

(1) Expanded menu

(a) Trace Direction

Displays the menu for selecting the desired trace region in Doppler Auto Trace.



The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
Toward	Changes the traced region for Doppler Auto Trace to above the baseline.
Away	Changes the traced region for Doppler Auto Trace to below the baseline.
Both	You can freely change the traced region for Doppler Auto Trace to the region above or below the baseline.
Auto	Changes the traced region for Doppler Auto Trace to switch automatically. If the baseline is in the center of the image, or below the center, the area above the baseline is targeted. If the baseline is above the center of the image, the area below the baseline is targeted.

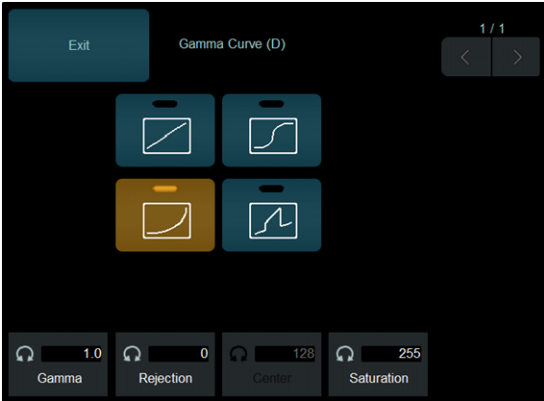
(b) Color Map (D)



Menu item	Description
A to O	Colors the Doppler waveform with the selected color map.

(c) Gamma Curve (D)

Displays the expanded menu for Gamma Curve.



Menu item	Options	Description
Gamma	-4.0 to 4.0	Changes the gamma value, in 0.1 increments.
Rejection	0 to 255	Changes the location of the rise of the curve.
Center	0 to 255	Changes the location of the center for S-shaped curves.
Saturation	0 to 255	Changes the saturation location of curves.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
	Applies a Linear Type gamma curve.
	Applies an S-Curve Type gamma curve.
	Applies a Parabolic Type gamma curve.
	Applies a Window Type gamma curve.

9.3.4 Function menus: Color

This section explains function menus classified as Color Doppler mode (CF, PD, eFlow, DFI).

Menu item	Options	Description
Accumu. Imaging	Off	Hides the overlay display of color pixels in real time.
	On	Shows color pixels in an overlay display in real time.
Accumu. Time	0.25 sec to 4 sec 8 sec Conti.	Changes the [Accumu. Imaging] accumulation time. The color Doppler display is updated at the specified time. 0.25 sec to 1.0 sec can be changed in 0.25 sec steps, and 1.0 sec to 4.0 sec can be changed in 1.0 sec steps. The color Doppler display is not updated if the setting is [Conti.].
Baseline Shift (Color)	-64 to 64	Shifts the CF image baseline (0 cm/s) vertically. Shifts the baseline vertically relative to [0] which is treated as the center of the color scale.
Beam Steer (Color)	-30 deg to 30 deg	Changes the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. NOTE: The steering angle range varies depending on the probe.
Beam Steer [Skip] (Color)		Switches between the angle set in [Beam Steer (Color)], the reverse angle, and the 0° position for the color ROI.

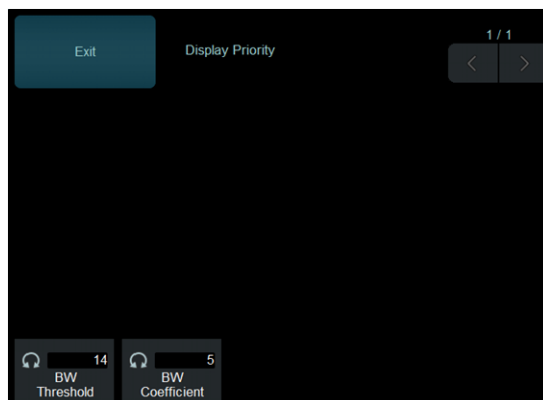
Menu item	Options	Description
Blend	0% to 100%	Changes the color permeability in TDI mode or CHI-Color mode. If the movement speeds of tissues are displayed in color, increasing the transparency ratio makes the background color more transparent and makes it easier to see the background B mode image.
Capture Imaging	Off	Hides the overlay display of color pixels after the image is frozen.
	On	Shows color pixels in an overlay display after the image is frozen.
DFI Image Priority	Reso	Prioritizes resolution for the DFI transmission and reception settings.
	Pene	Prioritizes sensitivity for the DFI transmission and reception settings.
DFI Sensitivity	0 to 3	Changes the blood flow depiction sensitivity of a DFI image.
Directional	Off	Hides the blood flow direction in PD mode, eFlow mode, or DFI mode.
	On	Displays the blood flow direction in PD mode, eFlow mode, or DFI mode.
Dual CF	Off	Displays tomographic image in the single-screen view.
	On	In the dual-screen view, this simultaneously displays the B mode image on the left and the color Doppler mode image on the right.
Dual CF Offset Gain	-30 dB to 30 dB	Changes the gain compensation value to apply to B mode gain in [Dual CF] B+CF mode.
Dynamic Range (Color)	1 to 16	Changes the dynamic range in PD mode, eFlow mode, and DFI mode images.
Flow Edge	Off	Does not suppress the protrusion of color into tissue in color Doppler mode.
	Low Mid High	Changes the suppression level of protrusion of color into tissue in the color Doppler mode.
Glossy Level	Off	Hides glossy display of color Doppler mode images.
	1 to 4	Changes the glossy level of color Doppler mode images.
HI Framerate (Col)	Off	Ends color Doppler-mode image display at a high frame rate.
	On	Displays a color Doppler-mode image at a high frame rate.
Invert Color Map	Off	Restores inverted color polarity.
	On	Inverts color polarity.
Invert Steer (Color)		Switches between the angle set in [Beam Steer (Color)] and the reverse angle for the color ROI.

Menu item	Options	Description
Line Density (Color)	1 to 8	The higher the level, the higher the line density, which improves lateral resolution. The lower the level, the lower the line density, which improves the frame rate. NOTE: The configurable range varies depending on the probe.
Packet Size	Small	Displays low-definition color Doppler mode images. With this setting, the frame rate is higher than that for Middle.
	Middle	Sets a medium packet size (between Large and Small).
	Large	Displays high-definition color Doppler mode images. With this setting, the frame rate is lower than that for Middle.
Persist. Level (Color)	0	Cancels correlation processing (persistence) between image frames.
	1 to 7	Changes the level of correlation processing (persistence) between image frames.
Ref. Frequency (Color)		Changes the reference frequency (Transmit) when in CF, PD, eFlow, or DF mode display. NOTE: The configurable range varies depending on the probe.
Smoothing (Color)	0 to 4	Changes the level for smoothing the color Doppler mode image.
Texture(Color)	Smooth	Displays the smoothness level of color Doppler mode images.
	Sharp	Displays sharp color Doppler mode images.
Variance Enhance.	1 to 8	Changes the variance level for displaying the CF mode image.
Vel. Range (Color)	0.63 to 458.33	Changes the velocity range (cm/s) for color Doppler mode. NOTE: The velocity range varies depending on the probe.
Wall Filter (Color)	1 to 6	Removes unnecessary signals caused by wall movement and increases the slow blood flow detection sensitivity to a higher level.
Wall Motion Reduction	Off	Cancels the removal of body movement.
	Low	Changes the level for removing body movement.
	Mid	
	High	

(1) Expanded menu

(a) Display Priority

Displays an expanded menu for the display priority for locations where the tomographic image and color overlap.



Menu item	Options	Description
BW Threshold	0 to 16	Changes the monochrome brightness threshold value.
BW Coefficient	1 to 10	Changes the correction coefficient for monochrome brightness.

(b) Color Map (Color)



Menu item	Description
A to O	Colors the CF image with the selected color map.

9.3.5 Function menus: DSD

This section explains function menus classified as D.S.D.

Menu item	Options	Description
DSD (ECG)	Off	Ends the DSD (ECG) mode.
	On	Starts DSD (ECG) mode.
DSD (Time)	Off	Ends the DSD (Time) mode.
	On	Starts DSD (Time) mode.
DSD Refresh		Resets the time phase of slow-motion display in DSD (ECG) mode or DSD (Time) mode.
DSD Refresh Timing	1 to 10	Changes the refresh interval of slow-motion display in DSD (Time) mode.

Menu item	Options	Description
DSD Speed	1/2 1/3 1/4 1/10	Switches the playback speed of slow-motion display.

9.3.6 Function menus: FAM

This section explains function menus classified as FAM.

Menu item	Options	Description
Active FAM disp. off		Erases (if there are two or more FAM cursors) the active FAM cursor.
Center Independence	Off	Links multiple FAM cursors at their center points.
	On	Disables the links between FAM cursors.
Dynamic Range (FAM)	40 dB to 90 dB	Changes the dynamic range of FAM mode images.
FAM	Off	Ends the FAM mode.
	On	Starts FAM mode. Displays the FAM cursor on a B mode image.
FAM Cursor Number	2	Displays two FAM cursors.
	3	Displays three FAM cursors.
Graymap (FAM)	1 to 10	Applies the selected gray map.
Grayscale Enh. (FAM)	Off, Low, Mid, High	Adjusts the balance between low brightness and high brightness in the gray scale of a FAM mode image.
LE Reduct.(FAM)	0 to 70	Sets the level of suppression in 1-step increments of hypoechoic areas of FAM mode images.
MAG (FAM)	x1	Makes the depth magnification of the FAM image relative to the B mode image the same as the B mode image.
	x0.5 x0.75 x1.5 x2	Changes the depth magnification of the FAM image relative to the B mode image.
PSAX	Off	Displays one FAM cursor.
	On	Displays FAM cursors at uniform angles, with the FAM cursors linked at their respective center points. The positions of multiple FAM cursors can be moved simultaneously.
Trace Fit	Off	Sets the length of the FAM cursors to be the same as the range of the FAM image in [MAG (FAM)].
	On	Fits the displayed length of FAM cursors to the range of the B mode image. [MAG (FAM)] is equivalent to [x1.0].

(1) Expanded menu

(a) Gamma Curve (FAM)

Displays the expanded menu for Gamma Curve.



Menu item	Options	Description
Gamma	-4.0 to 4.0	Changes the gamma value, in 0.1 increments.
Rejection	0 to 255	Changes the location of the rise of the curve.
Center	0 to 255	Changes the location of the center for S-shaped curves.
Saturation	0 to 255	Changes the saturation location of curves.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
	Applies a Linear Type gamma curve.
	Applies an S-Curve Type gamma curve.
	Applies a Parabolic Type gamma curve.
	Applies a Window Type gamma curve.

9.3.7 Function menus: Physio

This section explains function menus classified as Physio.

Menu item	Options	Description
ECG Auto Sensitivity	Off, S, M, L	Automatically adjusts ECG sensitivity. Changing [ECG Sensitivity] sets this item to Off.
ECG Display	Off	Hides ECGs.
	On	Displays ECGs.
ECG Filter	Off	Disables the ECG Filter.
	On	Enables the ECG Filter and displays an ECG with body movement removed.

Menu item	Options	Description
ECG Lead	I,II, III	Sets the method for leads in an ECG.
ECG Position	1 to 32	Changes ECG display position. You can change this in a vertical direction in 32 steps.
ECG Sensitivity	0 to 30	Changes the level of adjustment of ECG sensitivity. The display amplitude of the ECG is increased according to the numerical value. At level [0], the ECG is displayed as a flat line.
HR Stability Display	Off	Cancels HR Stability Display.
	On	Starts HR Stability Display. The heart rate display is highlighted once heartbeat stability is detected.
HR Stability Display (Ave.)	0% to 50%	Changes the allowable range (%) relative to the average heart rate over the latest four heartbeats.
HR Stability Display (Conti.)	0% to 50%	Changes the allowable range (%) relative to the rate of change between two consecutive heartbeats.
Invert ECG Display	Off	Cancels inversion of the ECG.
	On	Inverts ECG display vertically.
PCG Display	Off	Hides PCGs.
	On	Displays PCGs.
PCG Filter	Low, Med, High	Starts the PCG Filter and changes the noise removal level.
PCG Position	1 to 32	Changes the PCG display position. You can change this in a vertical direction in 32 steps.
PCG Sensitivity	0 to 30	Changes the level of adjustment of PCG sensitivity. The display amplitude of the PCG is increased according to the numerical value. At level [0], the PCG is displayed as a flat line.
Pulse Display	Off	Hides the pulse.
	On	Displays the pulse
Pulse Position	1 to 32	Changes the pulse display position. You can change this in a vertical direction in 32 steps.
Pulse Sensitivity	0 to 30	Changes the level of adjustment of pulse sensitivity. The display amplitude of the pulse is increased according to the numerical value. At level [0], the pulse wave is displayed as a flat line.
Resp Display	Off	Hides Resp.
	On	Displays Resp.
Resp Display Method	Scroll	Displays Resp as a waveform.
	Bar	Displays Resp as a bar.
Resp Position	1 to 32	Changes the Resp (waveform) display position. You can change this in a vertical direction in 32 steps.
Resp Sensitivity	0 to 30	Changes the level of adjustment of Resp sensitivity. The display amplitude of Resp (waveform) is increased according to the numerical value. At level [0], the Resp (waveform) is displayed as a flat line.

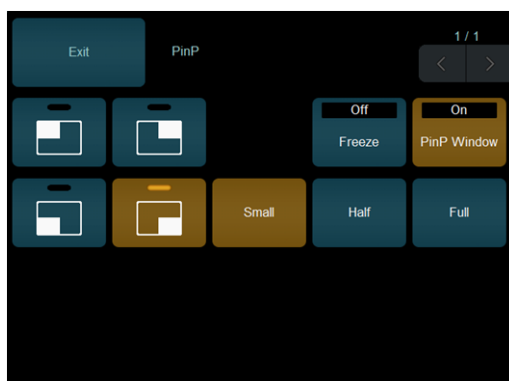
Menu item	Options	Description
R-R Detection	Off	Ends R-R Detection.
	On	Starts R-R Detection.
R-R End Frame		Jumps to the R-R Detection sector immediately after the time phase bar.
R-R Interval (ms)	On	Shows the R-R interval of the detected heartbeat.
	Off	Hides the R-R interval of the detected heartbeat.
R-R Start Frame		Jumps to the R-R Detection sector immediately preceding the time phase bar.
RRp/RRpp	±5% to ±50%	Changes the allowable variation range between the latest and previous R-wave intervals in steps of ±5%. NOTE: If RRp/RRpp is within the allowable variation range, that sector is judged to be a stable heartbeat sector.
Tachy/Brady Filter	On	The heartbeats for which the R-R interval is outside the range from 0.6 to 1 second in the target sectors are excluded from the displayed results of R-R interval detection.
	Off	The results of R-R interval detection performed within the range set with RRp/RRpp are displayed.

9.3.8 Function menu: PinP

This section explains function menus classified as PinP.

(1) PinP

The [PinP] menu is an expanded menu. All its submenus can be assigned to function menus.



Menu item	Options	Description
Freeze	Off	Starts the acquisition of images in the PinP window.
	On	Stops the acquisition of images in the PinP window.
PinP Window	Off	Hides the PinP window.
	On	Displays the PinP window.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu items for selecting the display position of the small PinP window

Menu item	Description
 Upper Left	Displays a small PinP window on the upper left.
 Upper Right	Displays a small PinP window on the upper right.
 Lower Left	Displays a small PinP window on the lower left.
 Lower Right	Displays a small PinP window on the lower right.

Menu items for selecting the display position of the PinP window

Menu item	Description
Small	Displays the PinP window at a small size.
Half	Displays the PinP Window at half size.
Full	Displays the PinP window at full size.

9.3.9 Function menus: Other

This section explains function menus classified as Other.

Menu item	Options	Description
Audio Volume	0 to 10	Changes the volume. [0] is mute.
B/D Format	L/R	The B mode image is displayed on the left and D mode is displayed on the right in B/D mode.
	U/D	The B mode image is displayed above and D mode is displayed below in B/D mode.
B/M Format	L/R	The B mode image is displayed on the left and M mode is displayed on the right in B/M mode.
	U/D	The B mode image is displayed above and M mode is displayed below in the B/M mode.
Beam Steer (B/C/D)	-30 deg to 30 deg	Changes the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. Applied simultaneously to the B mode image, flow area, and D cursor. NOTE: The steering angle range varies depending on the probe.
Beam Steer (C/D)	-30 deg to 30 deg	Changes the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. Applied simultaneously to the flow area and D cursor. NOTE: The steering angle range varies depending on the probe.

Menu item	Options	Description
Beam Steer [Skip] (B/C/D)		Switches between the angle set in [Beam Steer (B/C/D)], the inverted angle, and the 0° position. Applied simultaneously to the B mode image, flow area, and D cursor.
Beam Steer [Skip] (C/D)		Switches between the angle set in [Beam Steer (C/D)], the reverse angle, and the 0° position. Applied simultaneously to the flow area and D cursor.
Cine Reset		If you select this item when images are displayed in real time, the images in the cine memory are deleted, and the displayed images are saved to the cine memory when this item is selected. If you select this item when video images are being saved, the processing of saving the video images stops.
Counter (A)	Off	Ends counting up and hides the counter at the top left of the screen.
	On	Starts counting up and displays the counter on the top left of the screen. If a freeze is in effect, the counter stops, and the freeze counter is displayed to the right of the counter.
Counter (B)	Off	Ends counting up and hides the counter at the top left of the screen.
	On	Starts counting up and displays the counter on the top left of the screen. If a freeze is in effect, the counter stops, and the freeze counter is displayed to the right of the counter.
Disk Remain		Displays the remaining media capacity display in the dialog box.
ECG Cycle	1 to 10	Changes the play range and image save range that are set with the heart rate.
Exit Protocol		Ends the currently executed protocol.
Guide View	Off	Hides the reference image when a protocol is being executed.
	On	Displays the reference image when a protocol is being executed.
Invert Link	Off	[Invert Spectrum] and [Invert Color Map] are changed individually.
	On	Links [Invert Color Map] to [Invert Spectrum].
Invert Steer (B/C/D)		Switches between the angle set in [Beam Steer (B/C/D)] and the inverted angle. Applied simultaneously to the B mode image, flow area, and D cursor.
Invert Steer (C/D)		Switches between the angle set in [Beam Steer (C/D)] and the inverted angle. Applied simultaneously to the flow area and D cursor.
Load Raw Data		Loads Raw data into Cine memory and plays it back.

Menu item	Options	Description
Logoff	Off	Indicates that the user is using the system (if user authentication is set).
	On	Ends system usage and displays the login screen (if user authentication is set).
Loop Method	Frame, Beat	Sets how the playback range is to be changed.
Manual	On, Off	Displays the instruction manual selection menu screen.
Next Image		Switches to the next selected image in full screen view or comparison display.
Next View		Moves the View forward by one.
Original		Displays the Raw playback image in the state it was in before image adjustment.
Parameter Display	On, Off	Displays the frequency (B), display range, B gain value, and dynamic range value.
Pause Protocol	Off	Resumes the protocol.
	On	Pauses the protocol.
Playback	Off	Stops the playback of cine memory images or videos (excluding those in PC format).
	On	Plays back cine memory images or videos (excluding those in PC format).
Playback Speed	1 Hz to (frame rate at acquisition)	Changes the image playback speed (frame rate) when Playback Speed Unit is set to [Frame Rate] on the Common2 tab in the preset ([Preset Setup] > [Filing]).
	x1 x1/2 x1/4 x1/8 x1/16	Changes the ratio of image playback speed in regards to import playback speed when Playback Speed Unit is set to [Ratio] on the Common2 tab in the preset ([Preset Setup] > [Filing]).
Power Limit Override	Off	Restricts acoustic power in fetal applications.
	On	Overrides acoustic power restrictions in fetal applications. The acoustic power display is highlighted.
Prev Image		Switches to the previously selected image in full screen view or comparison display.
Prev. View		Moves the View backward by one.
Print Queue		Prints print files in the print queue folder.
R-Delay Time	0.00 to 2.55	(CHI mode) Changes the time phase of contrast-enhanced image display to synchronize with the ECG in steps of 0.01s. Displays the contrast-enhanced image at a time phase delayed by the set time from the R-wave.
Reset Counter (A)		Resets Counter (A) to 00:00.
Reset Counter (B)		Resets Counter (B) to 00:00.

Menu item	Options	Description
Restart Store		Starts to save the video images when this item is selected.
R-Wave Beep	Off, On	Plays or mutes beeps when an R-wave is detected.
Sensor		Starts communication with the magnetic sensor unit.
Sensor Switch	External	Uses an external magnetic sensor.
	Built-in	Uses a magnetic sensor built into the probe.
Teaching File (Video)	Off	Removes the patient information mask for images output to media other than the system hard disk, during a video clip or video output.
	On	Masks patient information for images output to media other than the system hard disk, during a video clip or video output.
Thumbnail Page		Switches pages in the thumbnail area.
Time Cycle	1 to 16 30 45 60 75 90	Changes the play range and image save range that are set with the time (s).
Trimming		Saves part of a video.
USB Media	(Depends on the connected USB media)	Outputs images to the selected USB-connected media.
Video Clip Auto Stop	Off	Returns to the real time display after a video clip is saved while Acquisition Mode is Manual.
	On	Freezes the display after a video clip is saved while Acquisition Mode is Manual.

(1) Alternative menus

If one of the menu items is selected, the remaining menu items are switched Off.

- Switching QSS presets

NOTE: The name is a factory default setting. Because names can be changed in presets, they may be displayed as something other than from A to D.

Menu item	Description
QSS A	Applies QSS A presets.
QSS B	Applies QSS B presets.
QSS C	Applies QSS C presets.
QSS D	Applies QSS D presets.

- Switching the Display Screen

Menu item	Description
Current View	Displays the scanning screen.

Menu item	Description
Find	Displays the search screen.
Full Screen View	Displays the selected image (thumbnail) on full screen.
Image Compare	Displays the selected image on the left and the scan image on the right in the dual-screen view.
Tile View	Displays a list of images with the same ID as the current patient ID.

(2) Expanded menu

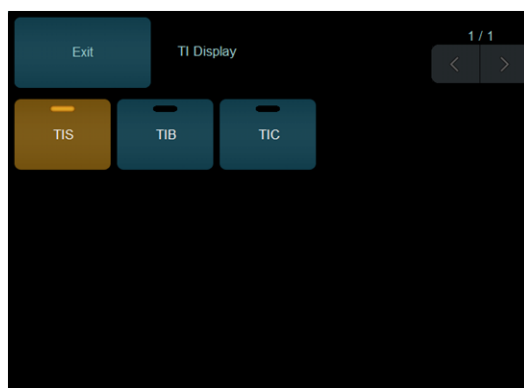
(a) Loop Mode (Img Compare)

Displays (in an expanded menu) the playback modes in [Image Compare] mode.
The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
ECG Sync	Resets the loop playback of a raw video playback image at the timing of an R-wave if ECG is displayed on the scanning screen.
Free Run	Plays a raw video playback image normally at the timing of an R-wave if ECG is displayed on the scanning screen. The system is in this status if no ECG is displayed on the scanning screen or the playback image is not a raw video.

(b) TI Display

Displays the display method for thermal index in the expanded menu.

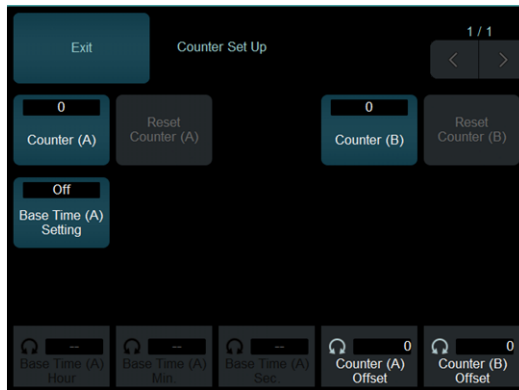


The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
TIS	This is displayed using the thermal index for soft tissue (TIS).
TIB	This is displayed using the thermal index for bone (TIB).
TIC	This is displayed using the thermal index for cranium (TIC).

(c) Counter Set Up

Displays the Counter menu on the expanded menu.



Menu item	Options	Description
Counter (A)	Off	Ends counting up and hides the counter at the top left of the screen.
	On	Starts counting up and displays the counter on the top left of the screen. If a freeze is in effect, the counter stops, and the freeze counter is displayed to the right of the counter.
Reset Counter (A)		Resets Counter (A) to 00:00.
Base Time (A) Setting	Off	Does not set Base Time (A) Hour, Base Time (A) Min., or Base Time (A) Sec..
	On	Sets Base Time (A) Hour, Base Time (A) Min., and Base Time (A) Sec..
Counter (B)	Off	Ends counting up and hides the counter at the top left of the screen.
	On	Starts counting up and displays the counter on the top left of the screen. If a freeze is in effect, the counter stops, and the freeze counter is displayed to the right of the counter.
Reset Counter (B)		Resets Counter (B) to 00:00.
Base Time (A) Hour	00 to 23	Changes the period of base time (hours).
Base Time (A) Min.	00 to 59	Changes the period of base time (minutes).
Base Time (A) Sec.	00 to 59	Changes the period of base time (seconds).
Counter (A) Offset	-59 to 00	Changes the Counter (A) offset time (seconds).
Counter (B) Offset	-59 to 00	Changes the Counter (B) offset time (seconds).

(d) Playback Mode

Displays the expanded menu related to continuous playback of multiple images.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
Short	Plays back in line with the image with the fewest frames. Playback of images with a large number of frames will stop when playback of images with a small number of frames stops.

Menu item	Description
Long	Plays back in line with the image with the most frames. Playback of images with the smaller number of frames pauses and stands by for playback of images with the larger number of frames to finish.
Align	Playback is based on the playback time of the image with the largest number of frames and playback speed of other images is adjusted to this standard and synchronized so that playback of all images ends at the same time.
Free Run	Plays each image without synchronizing them.

(e) Monitor/Panel Setup

Displays an expanded menu related to monitor, control panel, and touch panel brightness.



Menu item	Options	Description
Monitor Color Temp	Low, Medium, High	Changes the color temperature of the monitor.
Monitor Brightness	1 to 10	Changes the brightness of the monitor.
Monitor Contrast	1 to 10	Changes the contrast of the monitor.
Panel LED Brightness	Low, Medium, High	Changes the brightness of the operation panel (key illumination LEDs).
Touch PNL Brightness	1 to 10	Changes the brightness of the touch panel display.
Monitor BackLight	1 to 10/1 to 20	Changes the backlight of the monitor. NOTE: Items you can set differ depending on the size of the screen. NOTE: This item does not appear when a 22-inch monitor is used.
Monitor Scaling	Small, Medium, Large	Changes the size of the screen displayed on the monitor. NOTE: This item appears only when a 23-inch monitor is used.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
Type A	Applies type A collective settings for the monitor, control panel, and touch panel LED brightness settings.

Menu item	Description
Type B	Applies type B collective settings for the monitor, control panel, and touch panel LED brightness settings.
Type C	Applies type C collective settings for the monitor, control panel, and touch panel LED brightness settings.

(f) Acquisition Mode

Displays the expanded menu for video acquisition.

The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
Pre (Time)	After the [Store] key is pressed, this setting saves images prior to the time set in [Time Cycle].
Pre (ECG)	After the [Store] key is pressed, this setting saves images prior to the time set in [ECG Cycle].
Post (Time)	After the [Store] key is pressed, this setting saves images for the time set in [Time Cycle].
Post (ECG)	After the [Store] key is pressed, this setting saves images for the time set in [ECG Cycle].
Manual	Press the [Store] key once to start saving images, and then press the [Store] key again to stop.

(g) Data Format (Still)

Displays the expanded menu for still image acquisition.

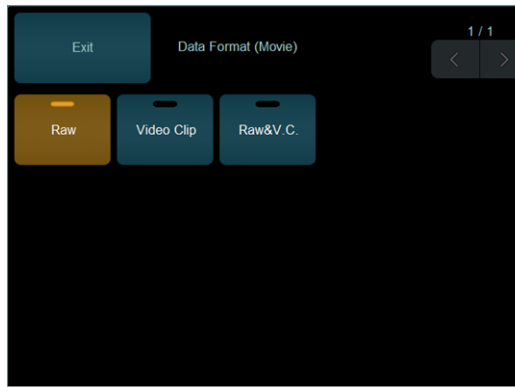


The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
RGB	Changes the save format for still images to [RGB].
Raw	Changes the save format for still images to [Raw].

(h) Data Format (Movie)

Displays the expanded menu for video acquisition.

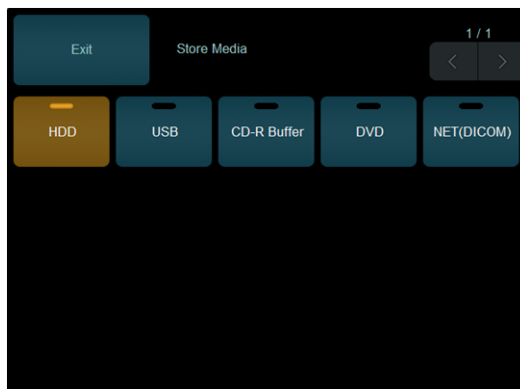


The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
Raw	Changes the format for saving videos to [Raw].
Video Clip	Changes the format for saving videos to [Video Clip].
Raw&V.C.	Changes the format for saving videos to [Raw&V.C.].

(i) Store Media

Displays the expanded menu for selecting a save destination.

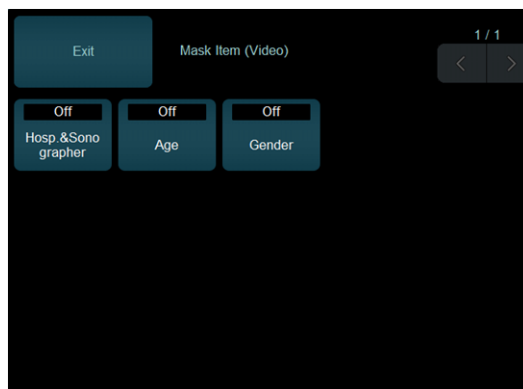


The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
HDD	Changes the image storage destination to the system hard disk.
USB	Changes the save destination to USB-connected media.
CD-R Buffer	Changes the save destination to the CD-R Buffer.
DVD	Changes the save destination to the DVD.
NET (DICOM)	Changes the save destination to network. Changes the save format for images to DICOM.

(j) Mask Item (Video)

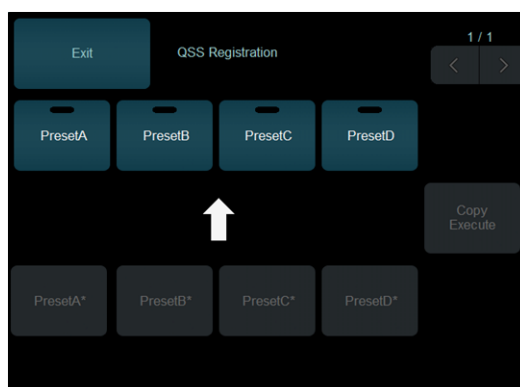
Masks patient information, for each of the following items, when outputting images to media other than the system hard disk, during video clips or video output.



Menu item	Options	Description
Hosp. & Sonographer	Off	Displays the hospital name and sonographer name.
	On	Masks the hospital name and sonographer name.
Age	Off	Displays patient's age.
	On	Masks patient's age.
Gender	Off	Displays patient's sex.
	On	Masks patient's sex.

(k) QSS Registration

Apply the current status of the analysis screen to QSS presets.

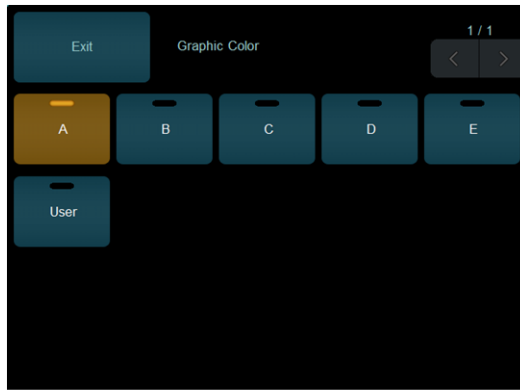


Procedure

1. Select [QSS Registration].
2. Select the copy destination preset from [A], [B], [C], or [D].
3. Select [Copy Execute].
 - The current status of the scanning screen is copied to the selected QSS preset.
 - If [Exit] is selected instead of [Copy Execute], the expanded menu is closed without copying.

(l) Graphic Color

Set graphics such as the screen scale and the color patterns for automatic displays in the expanded menu.

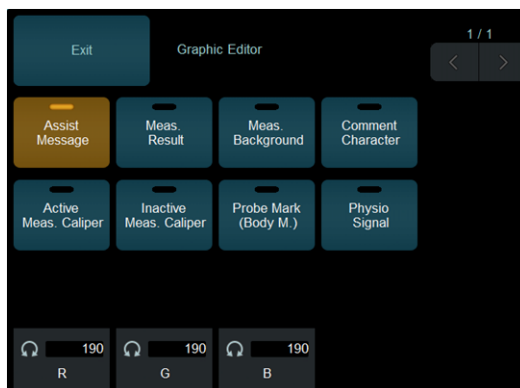


The following menu is an alternative menu. If one of the menu items is selected, the remaining menu items are switched Off.

Menu item	Description
A	Displays graphics and text with the selected color setting pattern. The [User] is displayed with the color setting pattern set with [Graphic Editor].
B	
C	
D	
E	
User	

(m) Graphic Editor

Display the expanded menus for setting graphics such as the screen scale and colors for automatic displays.



The specified colors can be selected for [User] under [Graphic Color].

Procedure

1. Select [Graphic Editor].
2. Select the color to edit.

Menus and their content

Item	Main target
Assist Message	Assist messages, scale, body marks, patient information, image information, etc.
Meas. Result	Text colors for measurement results

Item	Main target
Meas. Background	Background color of measurement results
Comment Character	Color of comment text
Active Meas. Caliper	Active measurement calipers, active FAM cursor, MD cursor, flow area, and Dual Gate Doppler active cursor
Inactive Meas. Caliper	Inactive measurement calipers, inactive FAM cursor, and Dual Gate Doppler inactive cursor
Probe mark (Body M.)	Probe marks displayed within body marks.
Physio Signal	Physiological waveforms such as ECG and PCG

- Set each value for [R], [G], and [B] on the multi rotary encoder.
→ The color of the editing subject changes on the screen display sample.
- Repeat steps 2 and 3 to edit the subject colors.
- Select [Exit] to stop.

9.3.10 Function menus: Find/Tile

This section explains function menus in the search screen or Tile View.

The function menus listed in this section are only displayed in the search screen or Tile View. They are not displayed on the scanning screen.

The type of Find/Tile function menu is either one shot or multiple choice.

Menu name	Description
2DTT Analysis	Starts 2D Tissue Tracking analysis.
3D Reconst.	Reconstructs the selected image as a 3D image to display it.
Burning CD-R	Writes the CD-R buffer data to a CD-R.
Burning DVD	Writes the data in the DVD-R buffer to a DVD media.
CHI Analysis	Launches CHI analysis.
Copy (CD-R Buffer)	Copies the selected images to the CD-R buffer.
Copy (DVD-R Buffer)	Copies the selected images to the DVD-R buffer.
Copy (DVD)	Copies the selected images to the DVD media.
Copy (Local HD)	Copies the selected images to the system hard disk.
Copy (USB)	Copies the selected images to the USB-connected media.
Copy All (CD-R Buffer)	Copies all images to the CD-R buffer.
Copy All (DVD)	Copies all images to the DVD media.
Copy All (DVD-R Buffer)	Copies all images to the DVD-R buffer.
Copy All (Local HD)	Copies all images to the system hard disk.
Copy All (USB)	Copies all images to the USB-connected media.
Current View	Switches to the scanning screen.
Delete	Deletes the selected image.
Delete All	Deletes all images.
Delete CD-R Buffer	Deletes all images from the CD-R buffer.
Delete DVD-R Buffer	Deletes all images from the DVD-R buffer.

Menu name	Description
Deselect All	Deselects all images from the displayed study.
Deselect All Patients	Deselects all images.
Direction R/L	The selected image is inverted horizontally.
Direction Up/Down	The selected image is inverted vertically.
Disk Remain	Displays the remaining capacity of the media.
DVD Format	Formats a DVD.
eTRACKING	Starts eTRACKING analysis, FMD analysis, or WI analysis.
File Form All	All images are displayed.
File Form Movie	Only displays video images.
File Form Raw	Only displays Raw format images.
File Form Single & V.C.	Only displays still images and videos in Video Clip format.
File Form Still	Displays only still images.
File Form Stress	Only displays stress echo images.
Find	Displays the search screen.
Full Screen View	Displays the selected image in full screen.
History Clear	(Search screen only) Clears the patient ID, patient name, and Study ID search history.
Image Compare	Displays the selected image on the left and the scan image on the right in the dual-screen view.
Item Clear	(Search screen only) Clears search conditions.
Network (Preset)	Sends the selected images to a network server. NOTE: Make sure in advance that the destination server is selected. If no destination server is selected, data will not be sent.
Network (Remote1)	Sends the selected images to network server Remote1.
Network (Remote2)	Sends the selected images to network server Remote2.
Network (Remote3)	Sends the selected images to network server Remote3.
Network (Remote4)	Sends the selected images to network server Remote4.
Network (Remote5)	Sends the selected images to network server Remote5.
Network All (Preset)	Sends all images to a network server. NOTE: Make sure in advance that the destination server is selected. If no destination server is selected, data will not be sent.
Network All (Remote1)	Sends all images to network server Remote1.
Network All (Remote2)	Sends all images to network server Remote2.
Network All (Remote3)	Sends all images to network server Remote3.
Network All (Remote4)	Sends all images to network server Remote4.
Network All (Remote5)	Sends all images to network server Remote5.
Next Image	Switches to the next selected image in full screen view.
Original Size	Displays the selected image at the same size as the original.
PC Format (CD-R Buffer)	Saves selected images in PC formats (BMP, JPEG, TIFF, AVI, WMV, or MP4) to the CD-R buffer.

Menu name	Description
PC Format (DVD)	Saves selected images in PC formats (BMP, JPEG, TIFF, AVI, WMV, or MP4) to DVD media.
PC Format (DVD-R Buffer)	Saves selected images in PC formats (BMP, JPEG, TIFF, AVI, WMV, or MP4) to DVD-R buffer.
PC Format (USB)	Saves selected images in PC formats (BMP, JPEG, TIFF, AVI, WMV, or MP4) to USB-connected media.
PC Format All (DVD-R Buffer)	Saves all images in PC formats (BMP, JPEG, TIFF, AVI, WMV, or MP4) to the DVD-R buffer.
Prev Image	Switches to the previously selected image in full screen view.
Print (DICOM)	Prints the selected images from a DICOM printer on the network.
Print (Local)	Prints selected images on the local (connected to the system) printer.
Print All (DICOM)	Prints all images from a DICOM printer on the network.
Print All (Local)	Prints all images on the local (connected to the system) printer.
Reset Image	Resets inversion and rotation of the selected image.
Rotate 180 deg	Rotates the selected image 180°.
Rotate L 90 deg	Rotates the selected image 90° to the left.
Rotate R 90 deg	Rotates the selected image 90° to the right.
Search	(Search screen only) Finds patient data matching the set conditions.
Select All	Selects all images from the displayed study.
Stress Echo Load	Loads stress echo data.
TDI Analysis	Launches TDI analysis.
Tile View	Displays a list of images with the same ID as the current patient ID.
USB Media	Outputs images to the selected USB-connected media.
Zoom In	Displays the selected image enlarged. Changes the display magnification from x1.4, to x2.0, x2.8, and x4.0 each time this is selected.
Zoom Out	The selected image is displayed reduced. Changes the display magnification from x2.8, to x2.0, x1.4, and x1.0 each time this is selected.

Presets

- 10.1 Overview
- 10.2 System presets
- 10.3 Application presets
- 10.4 QSS presets
- 10.5 Settings for each diagnostic region
- 10.6 Filing
- 10.7 Input devices
- 10.8 Dictionary
- 10.9 Color maps
- 10.10 Loading and backing-up presets
- 10.11 Managing users

10.1 Overview

Presets are functions that make the system easy to use with the default settings. In the default settings, the system includes basic settings ([System Preset]), parameter settings dependent on probes ([Application]), and parameter settings not dependent on probes ([Region]). Applications can be added, removed, exported, or imported.

NOTE: Regarding preset data which is not saved by [Save], changes will not be exported. Please save them by selecting [Save] on the changed preset screen.

Presets are composed as follows:

SystemPreset	Sets common system parameters
Application	Parameter settings dependent on the probe
Region	Parameter settings independent of the probe
Measurement	Measurement settings ^{*1}
Filing	Parameter settings related to image output and playback
Input Device	Function assignment for switches and menus
Dictionary	Settings for user and system dictionaries
ColorMap	Color map menu choice settings

^{*1}.

For details, see the separate manual "Measurements 1".

10.2 System presets

System presets set common system parameters.

Procedure

1. Press the [Probe/Preset] key.
2. Select [Preset Setup] on the touch panel.
3. Select [SystemPreset].
4. Select a category.

SystemPreset categories

Classification	Description
General	Basic system parameters
Monitor/Panel	Adjusts the brightness levels of the monitor, operation panel, and the touch panel.
Trackball	Trackball sensitivity setting
Filing	Parameters related to image output
Network Setting	System network settings.
DICOM	DICOM-related settings
Stress Echo	Stress echo protocol settings ^{*1}
Shear Wave Meas.	Shear Wave Measurement-related settings ^{*2}

Classification	Description
RVS	RVS-related settings ^{*3}

*1.

See "Stress Echo" in the separate manual "Advanced Operations 1".

*2.

See "Shear Wave Measurement" in the separate manual "Advanced Operations 2".

*3.

See "Real-time Virtual Sonography" in the separate manual "Advanced Operations 2".

5. Select a tab.

6. Edit the parameters.

To return parameters to their factory default settings:

Select [Initialize]. This changes the parameters in the displayed classifications to the factory default settings.

7. Select [Save] to save settings.

8. Select [Close] to return to the scanning screen.

If the following message is displayed: "Save changes to preset data?"

Select [Yes] to save changes.

Select [No] to close the preset screen without saving changes.

10.2.1 General

(1) Common 1 tab

(a) Date/Time

Parameters	Options	Description
Setting		Displays a dialog box where you can set the Windows date and time. The set date and time are reflected in the system.
Date Format	YY/MM/DD MMM.DD,YY MM.DD,'YY DD-MMM-YY DD-MM-'YY	Sets the system date display format. MMM displays the first three letters of the month in English characters. MM indicates the month numerically.

(b) Shut down

Parameters	Options	Description
Power Button Behavior	Selectable	Selects [Shutdown] or [Hibernation] when the power is turned off.
	Shutdown	Completely shuts down the system when the power is turned off.
	Hibernation	Puts the system into hibernation when the power is turned off. The system can be started faster than when [Shutdown] is selected.
Power Off Waiting Time (s)	0 to 60	Sets the wait time from the time the [Power] key is pressed, until the power-shutoff processing begins.

(c) Screen Saver

Parameters	Options	Description
Screen Saver Display	On, Off	Configures whether to use the screen saver.
Screen Saver	All Season Fireworks Fallen Leaves Snow Ribbon Hospital Name	Configures which screen saver to use. NOTE: Hospital Name will be displayed only when it is input in English.

(d) Timer Freeze

Parameters	Options	Description
Timer Freeze	On, Off	Sets whether to enable the timed freeze function. In addition, Off does not activate the screen saver.
Timer Freeze: Time	1 to 20	Sets the time until Timer Freeze or the screen saver is activated.

(e) ID Setting

Parameters	Options	Description
Unit (Height)	cm, m, feet/inch	Set the units for height.
Unit (Weight)	kg, pound	Set the units for weight.
Gender	(BLANK), Male, Female, Other	Sets the gender.
Autocomplete Setting	On, Off	Sets whether to display the patient ID or name that begins with the first and second numbers or letters of the corresponding patient when entered.

Parameters	Options	Description
BSA Equation	Du Bois, Boyd, Shintani	Sets the formula to use for calculating body surface area on the ID screen. The formulas for calculating BSA are as follows. - Du Bois $BSA = 0.007184 \times H^{0.725} \times W^{0.425}$ - Boyd $BSA = 0.0003207 \times H^{0.3} \times W^{(0.7285 - 0.0188 \times \log W)}$ - Shintani $BSA = 0.007358 \times H^{0.725} \times W^{0.425}$
GA/EDC Calculation	LMP, BBT, EGA, EDC, GA	Sets the method for calculating the gestational age and expected date of confinement on the ID screen.
Menstrual Data	LMP, BBT	Sets the method for entering the menstrual date on the ID screen.

(f) Display

Parameters	Options	Description
Parameter Display	On, Off	Sets the automatic display of the image display area (frequency (B), display range, B gain value, and dynamic range value).
5SW Graphic Type	A, B, C	Sets the color of the text in the trackball function information area and the color of the frames.
Info Display Position	Lower, Upper	Sets the automatic display of the image display area position (frequency (B), display range, B gain value, and dynamic range value).
Grid Type	A, B, C, D	Sets the grid type for Brachytherapy.
MI, TI Display when Frozen	On, Off	Sets the MI and TI display to be used when an image is frozen.
Graphic Color	A, B, C, D, E, User	Sets the graphic and font colors. Set the colors registered in [Graphic Editor] under the menu for [User].
Frequency Information	Transmit, Receive	Sets the frequency information in Tissue Harmonic Mode to Transmit or Receive.

(g) Range Zoom Encoder

Parameters	Options	Description
Reverse Depth Control	On	Turning the [PAN ZOOM/DEPTH] rotary encoder to the right reduces the displayed image. Turning it to the left enlarges the displayed image.
	Off	Turning the [PAN ZOOM/DEPTH] rotary encoder to the right enlarges the displayed image. Turning it to the left reduces the displayed image.

(2) Common 2 tab

(a) Trackball

Parameters	Options	Description
Reverse ROI Control	On	Rolling the trackball to the right expands the ROI laterally, while rolling it to the left shrinks it. Rolling it upwards shrinks it vertically, while rolling it downwards expands it.
	Off	Rolling the trackball to the right expands the ROI laterally, while rolling it to the left shrinks it. Rolling it upwards expands it vertically, while rolling it downwards shrinks it.
Automatic Reversal in PAN Zoom after HI Zoom	On, Off	Sets whether to invert the direction in which the trackball is to be rotated in PAN Zoom mode when the zoom mode is changed from HI Zoom to PAN Zoom.
HI Zoom Cycle Control	On, Off	Sets whether to enable the function that magnifies the target area by pressing the [HI Zoom] key when HI Zoom ROI is displayed.

(b) Beam Steer Encoder

Parameters	Options	Description
Reverse Beam Steer Control	On	If you turn the [Beam Steer] multi rotary encoder clockwise, the bottom edge of the ultrasound beam is deflected to the right. If you turn the multi rotary encoder counterclockwise, the bottom edge of the ultrasound beam is deflected to the left.
	Off	If you turn the [Beam Steer] multi rotary encoder clockwise, the bottom edge of the ultrasound beam is deflected to the left. If you turn the multi rotary encoder counterclockwise, the bottom edge of the ultrasound beam is deflected to the right.

(c) Significant Figure

Parameters	Options	Description
ABDOM	Standard Extended Setting1 Setting2 (Common parameters)	Set the number of digits to display for measurement results for each region. [Standard]: Depends on the scale. [Extended]: Displays as "****. ** mm, **. ***cm". [Setting 1]: Displays as "***. *mm, **. **cm". [Setting 2]: Displays as "****mm, **. *cm".
OBST		
GYN		
CARDIO		
VASCULAR		
SMALL PARTS		
UROLOGY		
OTHER		

(3) Hospital Info. tab

Parameters	Options	Description
Hospital Name		Enter the hospital name. Enter no more than 40 characters. The name input here is displayed on the scanning screen.
Local Machine: Department		Enter the department name within the hospital. Enter no more than 64 characters.
Local Machine: Address		Enter the address of the hospital. Enter no more than 128 characters.

10.2.2 Monitor/Panel

Sets the monitor, control panel, and touch panel brightness.

(1) Type A, Type B, Type C

Sets parameters for the monitor, control panel, and touch panel brightness all at once.

(a) Monitor

Parameters	Options	Description
Brightness	1 to 10	Sets the brightness of the monitor.
Contrast	1 to 10	Set the contrast of the monitor.
Color Temp.	Low, Medium, High	Sets the color temperature of the monitor.
Back Light	1 to 10/1 to 20	Sets the backlight of the monitor. NOTE: Items you can set differ depending on the size of the screen. NOTE: This item does not appear when a 22-inch monitor is used.
Scaling	Small, Medium, Large	Sets the size of the screen displayed on the monitor. NOTE: This item appears only when a 23-inch monitor is used.

(b) Touch panel

Parameters	Options	Description
Brightness	1 to 10	Sets the brightness of the touch panel.

(c) Panel LED

Parameters	Options	Description
Brightness	Low, Medium, High	Sets the LED brightness of the operation panel.

10.2.3 Trackball

Sets the sensitivity of the trackball.

(1) Sensitivity

Parameters	Options	Description
M&FAM Cursor	-50 to 50 (Common parameters)	Sets the sensitivity of the trackball for each parameter. The standard is set at [0]. Minus slows the response, while plus makes it faster.
PW&CW Cursor		
PW&CW&SWM Cursor*1		
CF Scan Area		
Measurement		
Probe Mark		
Cine Search		
Pointer		
Focus		
Other		

*1.

The optional product SOP-ARIETTA750-151 is required.

10.2.4 Filing

Sets image output.

(1) Archive tab

(a) Archive Group

Perform the following steps to set the output method for Archive Group1 to Archive Group5.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [SystemPreset], [Filing], and then the Archive tab.
3. Select a group from Archive group.
4. In the Real-time field of Assign function, set the output method for images that are displayed in real time .
5. In the Freeze field of Assign function, set up to three output methods for use after images are frozen.
6. In Format Type, set the output format of the Archive Group.
7. Select [Save] to save settings.
8. Select [Close] to return to the scanning screen.
If the following message is displayed: "Save changes to preset data?"
Select [Yes] to save changes.
Select [No] to close the preset screen without saving changes.

(b) Format Type(Archive Group)

Parameters	Options	Description
USB	DICOM, JPEG, BMP, TIFF	Sets the data storage format for saving to USB, CD-R Buffer, or DVD.
CD-R Buffer		
DVD		

(2) Printer/Recorder tab**(a) Local Printer**

Parameters	Options	Description
Printer Select (B/W)	SSZ-X311 UP-X898MD P95D	Sets the black-and-white printer.
Printer Select (Color)	SSZ-D710 UP-D25MD CP30D	Sets the color printer.
Number of Pages to Print	1 to 3	Sets the number of continuous prints with a digital black-and-white printer.

(3) Review1 tab**(a) Auto Select**

Parameters	Options	Description
When thumbnails are displayed in the Tile View or thumbnail area.	Select All Deselect All	Sets the selection status of thumbnails in Tile View or in the thumbnail area.

(b) Double Click (Find)

Parameters	Options	Description
When an image is double clicked on the Find screen.	Tile Full Screen	Sets the screen to be displayed after you move the pointer to a thumbnail in the search screen and then press the [Enter] key twice.

(c) Order (Review)

Parameters	Options	Description
Set the order of thumbnail display in Tile View.	Old to New New to Old	Sets the display sequence for thumbnails in the Tile view.

(d) Auto Loop (Tile)

Parameters	Options	Description
Loop playback of the thumbnails of Video Clip images in the Tile View.	On, Off	Sets the playback of thumbnails (video) in the Tile View.

(e) Protocol Assistant (Find/Tile)

Parameters	Options	Description
Sorts images taken with protocol assistant running from images taken without.	On, Off	Sets whether to save the images saved during execution of the protocol in a series that differs from other image series. NOTE: When On is specified, images are saved in a separate series, if images are saved during execution of a protocol. When Off is specified, the series are not divided when images are saved during execution of a protocol. A pink image number is displayed on the thumbnails of the images that are saved during execution of a protocol. If the system is shut down, the numbers are displayed in green the next time the system starts.

(4) Review2 tab**(a) Auto Search (Find)**

Parameters	Options	Description
When Find screen is displayed, search and display the current patient.	On, Off	When the screen is switched to the Find screen, the system automatically enters Today in Study Date to perform a search, and then displays the patient currently being examined with the patient selected. NOTE: This parameter is enabled only when you add or delete image data or for the first time after you press [New Patient].

(b) Thumbnail

Parameters	Options	Description
Display annotation on thumbnail.	On, Off	When an image is saved with a comment input, this setting displays the comment as large text on the thumbnail.

(c) Auto Load Raw Data

Parameters	Options	Description
Raw data of a single raw image is automatically loaded by:	Playing Raw Image	When displaying an image selected as a thumbnail or in Tile view in full screen, the system automatically loads the Raw data into Cine memory and plays back the image.
	Pressing Measurement/ Caliper SW	After an image selected as a thumbnail or in Tile view is displayed in full screen, the system automatically loads the Raw data into Cine memory and plays back the image when the [Caliper] or [Measurement] key is selected.
	Off	The system does not automatically load Raw data into Cine memory.

(5) Detail tab**(a) Auto Delete**

Parameters	Options	Description
Auto Image Delete	Storage Commitment	After receiving a Commitment, images stored on the system hard disk (blue icons) are deleted once the accumulation time has elapsed. These images are deleted when the system is shut down after the accumulation time has elapsed.
	Time	Deletes only images set in Delete Object from among the images that have been saved to the system hard disk and whose accumulation time has elapsed. These images are deleted when the system is shut down after the accumulation time has elapsed.
	Off	Specifies that stored images are not to be deleted.
Delete Object	All images	Specifies that all images stored on the system hard disk are to be automatically deleted.
	Clipped or sent images	Specifies that the following images are to be deleted: images output from the system hard disk to external media (light blue icons), and images transferred to the server (icons are orange or blue).
Holding Time (0-60)	Day, Week, Month	Sets the storage period for images saved to external media or transferred to the server from the system hard disk. Select the type from [Day], [Week], or [Month], and set the numerical value.

(b) Compression Data

Parameters	Options	Description
JPEG Q Factor (50-99)	50 to 99	Sets the image compression rate to use when the transfer syntax is JPEG.

(c) DICOM File Type (Stress Echo)

Parameters	Options	Description
Convert to Video Clip (Net. / USB)	On, Off	Set whether to copy images stored in the system hard disk to Video Clip format.

(d) Store ID Screen

Parameters	Options	Description
When starting examination, store ID Screen	On, Off	Sets whether to automatically save the Main Setting screen of the ID screen as an image when the ID screen on which a patient ID has been input is closed. NOTE: Select [Setup] at the top right of the ID screen, and then, in the General tab, set Emergency ID to [On]. If the Emergency ID setting is [Off], the Main Setting screen is not automatically saved because no patient ID is automatically input.

10.2.5 Network Setting

You can set various system network settings.

Parameters	Options	Description
AE Title		Enter an AE name for the system. Enter no more than 16 characters.
Station Name		Sets the station name of the system.
Port#	0 to 65535	Set the port number of the system.
QR Port#	0 to 65535	Sets the QR port no. of the system.
Select IP Version	IPv4, IPv6	Sets the IP version to be used for the system. The IP address window changes to the window for IPv4 or for IPv6, depending on the setting of Select IP Version. This setting also determines whether data is to be transferred to the IPv4 server or the IPv6 server. When IPv4 is selected, the settings of the IPv4 server are applied. When IPv6 is selected, the settings of the IPv6 server are applied.

Wired Network Connection and Wireless Network Connection (When Select IP Version is set to IPv4)

Parameters	Options	Description
Obtain an IP Address from a DHCP server	On, Off	Sets to automatically acquire the IP address via the DHCP server.
Use the following IP address	On, Off	Sets to a fixed IP address. The following 4 items have to be configured.
IP Address		Sets the IPv4 address for the system.
Router1		Sets the IPv4 address of the default gateway for prior use.

Parameters	Options	Description
Router2		Sets the IPv4 address of the default gateway for alternative use. This router will be used when there is no response from Router1.
Subnet Mask		Sets the IPv4 address of the subnet mask of the system.

Wired Network Connection and Wireless Network Connection (When Select IP Version is set to IPv6)

Parameters	Options	Description
Obtain an IP Address from a DHCP server	On, Off	Sets to automatically acquire the IP address via the DHCP server.
Use the following IP address	On, Off	Sets to a fixed IP address. The following 4 items have to be configured.
IP Address		Sets the IPv6 address for the system.
Router1		Sets the IPv6 address of the default gateway for prior use.
Router2		Sets the IPv6 address of the default gateway for alternative use. This router will be used when there is no response from Router1.
Prefix Length		Sets Prefix Length for the IPv6 address.

NOTE: Input rules of IPv6 addresses comply with the rules of Windows.

(1) Checking TCP/IP for the system

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Network Setting] of [System Preset].
3. Set various system network settings.
4. Select [Local Ping].
→ The system TCP/IP examination begins.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to ***** . ***** succeeded.	TCP/IP is functioning normally.
Ping check to ***** . ***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.

10.2.6 DICOM

Sets DICOM related parameters.

(1) Common tab

Parameters	Options	Description
Private Tag	None	Setting for no private tag to be assigned.
	Put into File	Sets assignment of a private tag when saving DICOM data to external media.
	Put into Network	Sets assignment of a private tag when sending DICOM data to a server.
	Put into Both	Sets assignment of a private tag when saving DICOM data to external media or transferring it to a server.
	Put into File +DICOMDIR	Sets assignment of a private tag when saving DICOM data to external media. Sets to also assign a private tag to DICOMDIR.
	Put into All	Sets assignment of a private tag when saving DICOM data to external media or transferring it to a server. Sets to also assign a private tag to DICOMDIR.
Attach Thumbnail	On	Produces thumbnail data within a folder and DICOMDIR.
	Off	Creates thumbnail data only in a folder.
	Off(PDI)	Does not produce thumbnail data in a folder nor in DICOMDIR.

(a) Store on Disk

Sets items related to the saving of images on external media.

Parameters	Options	Description
Syntax	Implicit Little Explicit Little RLE Lossless JPEG Baseline	Sets the transfer syntax.
DICOM+Raw	On, Off	Sets the assignment of Raw data when saving images in DICOM format.

(b) Send to Storage

Sets items related to the transferring of images to the network.

Parameters	Options	Description
Photometric	RGB Monochrome2	Sets the transfer method for color images.
JPEG Q Factor	50 to 99	Set the compression ratio when the Syntax is set for [JPEG Baseline]. NOTE: The smaller the value, the higher the compression rate is.
Dicom+Raw	On, Off	Sets the assignment of Raw data when saving images in DICOM format.
Window Center	0 to 255	Sets the median brightness value to DICOM Tag (0028,1050) when Photometric is set to [Monochrome2].

Parameters	Options	Description
Window Width	1 to 256	Sets the brightness width to DICOM Tag (0028,1051) when Photometric is set to [Monochrome2].

(2) Server/Worklist tab

(a) Setting up servers

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the Server/Worklist tab from [DICOM] of [SystemPreset].
3. Enter information about the network server.

Network server setting items

When Select IP Version is set to IPv4

When Select IP Version is set to IPv6

(1) IP Address editing button

Parameters		Options	Description
AE Title			Enter the AE name for the network server. Enter no more than 16 characters.
Station Name			Sets the computer name of the network server.
IP Address			Sets the IP address of the network server. NOTE: If Select IP Version is set to IPv6 and you click an IP Address editing button, the IPv6 address settings dialog box appears. Specify an IPv6 address.
Port#		0 to 65535	Sets the port no. of the network server. The DICOM standard setting is [104].
Monochrome Sending*1	Single	On, Off	Sets whether to use a still image identification transfer (sent by RGB transfer if a color image is included, and by Monochrome2 format if a color image is not included) if the destination is set to [Net (DICOM)].
	Multi	On, Off	Sets whether to use a video identification transfer (sent by RGB transfer if a color image is included, and by Monochrome2 format if a color image is not included) if the destination is set to [Net (DICOM)].
All Images of Study		On, Off	The SR file and image are sent if SR Auto Creation is On in the preset ([Preset Setup] > [SystemPreset] > [DICOM] > [SR]). NOTE: Make sure in advance that the destination server is selected. If no destination server is selected, data will not be sent.

*1.

This item can be set if RGB is set for the Photometric parameter from the preset ([System Preset] > [DICOM] > [Common] > [Send to Storage]).

4. Select the radio button for the server to which images are to be sent.

Setting the destination server

Multi: Select the check box for the server you want to send a video to.

Single: Select the check box for to the server you want to send a still image to.

DICOM Storage							
	Remote	Multi	Single	AE Title	Station Name	IP Address	Port #
1	☒	☐	☒			. . .	104
2	☐	☒	☐			. . .	104
3	☐	☐	☐			. . .	104
4	☐	☐	☐			. . .	104
5	☐	☐	☐			. . .	104

5. For the Worklist server, specify settings in steps 2 and 3 in the same way.

(b) Checking TCP/IP or C-ECHO for the network server

Prior confirmation

Enter all the network settings (4 items) for the desired server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
 2. Select the Server/Worklist tab from [DICOM] of [SystemPreset].
 3. Select the radio button for the target network server.
 4. Select [Remote Ping] to check TCP/IP functionality, and [Remote C-ECHO] to confirm the retention of DICOM handling functions.
- Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to ***** succeeded.	TCP/IP is functioning normally.
Ping check to ***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to ***** succeeded.	DICOM functions are being maintained.

Messages	Status
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(c) Checking TCP/IP or C-ECHO for a worklist

Prior confirmation

Enter all the network settings (4 items) for the worklist server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the Server/Worklist tab from [DICOM] of [SystemPreset].
3. Select the radio button for the work list server.
4. Select [WorkList Ping] to check TCP/IP functionality, and [WorkList C-ECHO] to confirm the retention of DICOM handling functions.
→ Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to *****.***** succeeded.	TCP/IP is functioning normally.
Ping check to *****.***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to *****.***** succeeded.	DICOM functions are being maintained.
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(3) QR tab

NOTE: IPv4 is the only supported IP version.

(a) Setting up servers

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the QR tab from [DICOM] of [SystemPreset].
3. Enter information about the network server.

Network server setting items

Parameters	Options	Description
AE Title		Enter the AE name for the network server. Enter no more than 16 characters.
Station Name		Sets the computer name of the network server.
IP Address		Sets the IP address of the network server.
Port#	0 to 65535	Sets the port no. of the network server. The DICOM standard setting is [104].

4. Select the radio button for the server to which images are to be sent.

(b) Checking TCP/IP or C-ECHO for the network server

Prior confirmation

Enter all the network settings (4 items) for the desired server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the QR tab from [DICOM] of [SystemPreset].
3. Select the radio button for the target server.
4. Select [Ping] to check TCP/IP functionality, and [C-ECHO] to confirm the retention of DICOM handling functions.
→ Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to *****.***** succeeded.	TCP/IP is functioning normally.
Ping check to *****.***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to *****.***** succeeded.	DICOM functions are being maintained.
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(4) MPPS/Commitment tab

(a) Specifying settings for the MPPS server or the Storage Commitment server

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.

2. Select the MPPS/Commitment tab from [DICOM] of [SystemPreset].
3. Enter information about the MPPS server.

MPPS Server settings

Parameters	Options	Description
AE Title		Enter the AE name for the network server. Enter no more than 16 characters.
Station Name		Sets the computer name of the network server.
IP Address		Sets the IP address of the network server. NOTE: If Select IP Version is set to IPv6 and you click an IP Address editing button, the IPv6 address settings dialog box appears. Specify an IPv6 address.
Port#	0 to 65535	Sets the port no. of the network server. The DICOM standard setting is [104].

4. Make settings in step 2 in the same way for the Storage Commitment server.
5. Make the various settings for Storage Commitment.

Parameters	Options	Description
Transaction limit	1 to 60	Set the wait time to wait for a reply from the Storage Commitment server after an image is sent. NOTE: A response is not received after the set time has elapsed. After entering the values, select the type from [hour], [day], and [week].
	Unlimited	Sets to continue waiting for a reply from the Storage Commitment server.
Retries	0 to 99	Sets the number of resend attempts if there is no response after an image is sent. [0] displays an error message without resending.
	Unlimited	Sets to continually retransmit until there is a reply from Storage Commitment server.

(b) Checking TCP/IP or C-ECHO for MPPS

Prior confirmation

Enter all the network settings (4 items) for the desired server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the MPPS/Commitment tab from [DICOM] of [SystemPreset].
3. Select the radio button for the target server.
4. Select [Ping] within the MPPS Server frame to check the TCP/IP function, and select [C-ECHO] within the MPPS Server frame to confirm the retention of DICOM handling functions.
→ Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to *****.***** succeeded.	TCP/IP is functioning normally.
Ping check to *****.***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to *****.***** succeeded.	DICOM functions are being maintained.
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(c) Checking TCP/IP or C-ECHO for Storage Commitment

Prior confirmation

Enter all the network settings (4 items) for the desired server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the MPPS/Commitment tab from [DICOM] of [SystemPreset].
3. Select the radio button for the target server.
4. Select [Ping] within the Storage Commitment frame to check the TCP/IP function, and select [C-ECHO] within the Storage Commitment frame to confirm the retention of DICOM handling functions.
→ Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to *****.***** succeeded.	TCP/IP is functioning normally.
Ping check to *****.***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to *****.***** succeeded.	DICOM functions are being maintained.
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(5) SR tab

(a) Configuring settings for a SR Storage server

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the SR tab from [DICOM] of [SystemPreset].
3. Configure the SR Auto Creation.

SR Auto Creation setting items

Parameters	Options	Description
Auto create&transfer SR file when the New Patient operation is generated.	On, Off	Sets the DICOM SR file auto create timing when the [New Patient] key is pressed or [End Exam] is selected.

4. Enter information about the SR Storage server.

DICOM SR Storage setting items

Parameters	Options	Description
AE Title		Enter the AE name for the network server. Enter no more than 16 characters.
Station Name		Sets the computer name of the network server.
IP Address		Sets the IP address of the network server. NOTE: If Select IP Version is set to IPv6 and you click an IP Address editing button, the IPv6 address settings dialog box appears. Specify an IPv6 address.
Port#	0 to 65535	Sets the port no. of the network server. The DICOM standard setting is [104].

5. Select the radio button for the target server.

(b) Checking TCP/IP or C-ECHO for SR Storage

Prior confirmation

Enter all the network settings (4 items) for the desired server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the SR tab from [DICOM] of [SystemPreset].
3. Select the radio button for the target server.
4. Select [Ping] to check TCP/IP functionality, and [C-ECHO] to confirm the retention of DICOM handling functions.
→ Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to *****.***** succeeded.	TCP/IP is functioning normally.
Ping check to *****.***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to *****.***** succeeded.	DICOM functions are being maintained.
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(6) Printer tab

(a) Configuring a DICOM printer

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select the Printer tab from [DICOM] of [SystemPreset].
3. Enter information about the DICOM printer.

DICOM Printer setting items

Parameters	Options	Description
Model Name		Select the printer model from the list.
AE Title		Enter the AE name for the DICOM printer. Enter no more than 16 characters.
Station Name		Sets the computer name of the DICOM printer.
IP Address		Sets the IP address of the DICOM printer. NOTE: If Select IP Version is set to IPv6 and you click an IP Address editing button, the IPv6 address settings dialog box appears. Specify an IPv6 address.
Port#	0 to 65535	Sets the port No. of the DICOM printer. The DICOM standard setting is [104].

4. Select the radio button for the DICOM printer to use.

(b) Checking TCP/IP or C-ECHO for a DICOM printer

Prior confirmation

Enter all the network settings (4 items) for the desired server.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.

2. Select the Printer tab from [DICOM] of [SystemPreset].
3. Select the radio button for the target server.
4. Select [Ping] to check TCP/IP functionality, and [C-ECHO] to confirm the retention of DICOM handling functions.
→ Starts the test of the system.

Examination Results

The following message is displayed when the test is complete.

Messages	Status
Ping check to *****.***** succeeded.	TCP/IP is functioning normally.
Ping check to *****.***** failed.	TCP/IP is not functioning. Consult the network administrator of the hospital network.
Echo check to *****.***** succeeded.	DICOM functions are being maintained.
Echo check to *****.***** failed.	DICOM functions are not being maintained. Consult the network administrator of the hospital network.

(7) Detail tab

Parameters	Options	Description
Timeout (1 - 1000)	1 to 1000	Sets the time (s) until communications time out.
Retry Interval	1 to 60, Power On	Sets the time before resending. Select the type from either [min] or [hour] after configuring the numeric value on the left.
DICOM Planar Configuration	Plane, Pixel	Configures DICOM RGB during network transmission.

10.3 Application presets

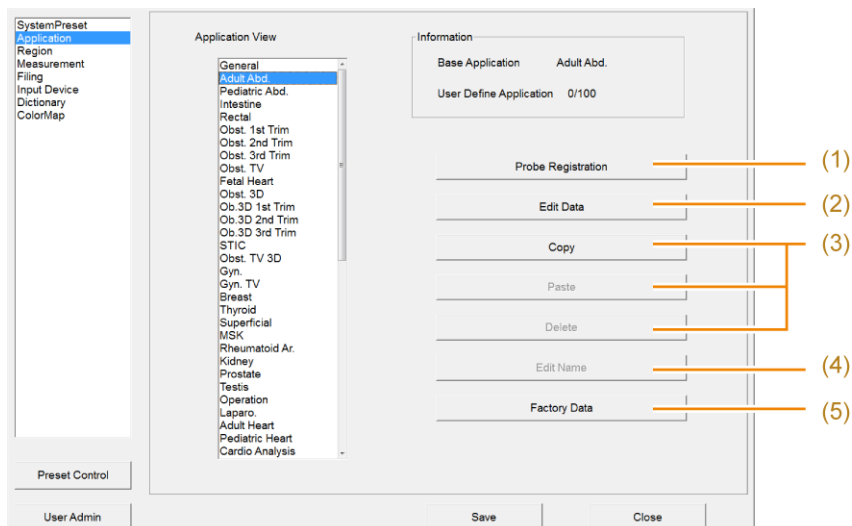
Configures categories dependent on probes.

Procedure

1. Press the [Probe/Preset] key.
2. Select [Preset Setup] on the touch panel.
3. Select [Application].

Display example

Application consists of the application list, information, and various buttons.



This screen can be used as follows.

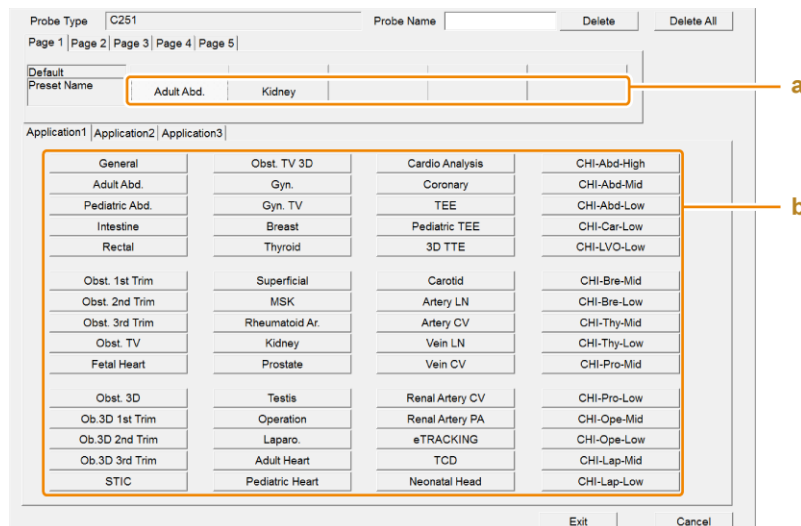
Parameters		Description
(1)	Probe Registration	Registering an Application to a Probe
(2)	Edit Data	Editing application parameters
(3)	Copy, Paste, Delete	Copying, pasting, and deleting applications
(4)	Edit Name	Changing application names
(5)	Factory Data	Initializing applications (resetting to the factory default settings)

10.3.1 Registering applications to a probe

Up to 25 applications can be registered to one probe. Applications that are registered to one probe can still be registered to another.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
4. Select [Probe Registration].
5. Select a probe.
6. Select an application.
 - a. Select the registration position.
 - b. Select an application.



To cancel application registrations:

Select the desired application and then select [Delete].

Select [Delete All] to cancel the registrations of all applications.

To configure applications as defaults:

Select the button above the name of the application.

To set any probe name:

Enter the name in the Probe Name field.

The set probe name appears in the scanning screen or touch panel probe image.

7. Select [Exit].

10.3.2 Adding and deleting applications

(1) Adding applications

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select an application to copy.
4. Select [Copy].
5. From the Application View field, select the application to overwrite.
To add a new application, select "[]".
NOTE: Factory default applications and applications used in the scanning screen cannot be overwritten.
6. Select [Paste].

→ The selected application is overwritten.

Newly added applications are added at the bottom of the Application list. This application is counted as a user-defined application.

(2) Deleting applications

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
NOTE: Factory default applications and applications used in the scanning screen cannot be deleted.
4. Select [Delete].
5. Check the message and select [OK].
→ The selected application is deleted. The application list is updated by moving applications upwards.

10.3.3 Changing application names

Change the name of newly added applications.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
NOTE: The names of factory default applications and "[]" cannot be changed.
4. Enter a name.
 - a. Select [Edit Name] and enter a name.
 - b. Select [Enter] on the keyboard.

10.3.4 Initializing applications

The selected application is restored to its factory default state.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
4. Select [Factory Data].
5. Select [OK] on the message.
→ This resets it to the factory default settings. For user-defined color maps, this returns the color map of the copy source to its factory default settings. However, the name does not change.

10.3.5 Sorting applications

Move the selected application within the application list.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
4. Use the trackball to move the application to the desired position, while holding down the [Enter] key.
5. Release the [Enter] key.

10.3.6 Editing application parameters

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
4. Select [Edit Data].
5. Select the desired parameter in the items field.

Application items

Item	Description	Reference
General	Configures parameters not classified below.	
B	B mode-related settings	
M	M mode-related settings	
Doppler	D mode-related settings	
Color	CF mode-related settings	
Tissue Dop.	TDI mode-related settings	
Body Mark	Body mark menu settings	
CHI	Contrast Harmonic Imaging-related settings	Separate manual "Advanced Operations 2"
Elasto	Settings related to real-time tissue elastography	Separate manual "Advanced Operations 2"
RVS	Settings related to real-time virtual sonography	Separate manual "Advanced Operations 2"
Stress Echo	Stress echo-related settings	Separate manual "Advanced Operations 1"
eTRACKING	Settings related to eTRACKING	Separate manual "Advanced Operations 3"

Item	Description	Reference
3D/4D	Settings related to 3D/4D	Separate manual "Advanced Operations 3"
BiPlane	Settings related to BiPlane	Separate manual "Advanced Operations 3"
Cardiac 3D	Settings related to Cardiac 3D	Separate manual "Advanced Operations 3"
Shear Wave Meas.	Shear Wave Measurement-related settings	Separate manual "Advanced Operations 2"
Auto FHR+	Settings related to Auto FHR+	
Protocol	Settings related to Protocol Assistant	

6. Select a tab.
7. Edit the parameters.
To return parameters on the displayed tab to their factory default settings:
Select [Initialize]. This changes only the parameters on the displayed tab to their factory default settings.
8. Select [Save] to save settings.
9. Select [Close] to return to the scanning screen.
If the following message is displayed: "Save changes to preset data?"
Select [Yes] to save changes.
Select [No] to close the preset screen without saving changes.

10.3.7 Application parameters: General

(1) Common tab

(a) Auto Optimizer

Parameters	Options	Description
Brightness Level	Auto, Manual	Sets acquisition of target brightness values to automatic or manual.
Brightness Level (Manual) [dB]	40 to 80	Sets the target brightness value when Brightness Level is set to [Manual].
Base Line Position	0 to 16, Unchanged	Sets the position for shifting the baseline when baseline shift is corrected in D mode and [Auto Optimizer] is On.
Vel.Range (PW)	1.26 to 802.08	Sets the target speed range for correcting in PW mode when [Auto Optimizer] is On.
Vel.Range (CW)	25.07 to 802.08	Sets the target speed range for correcting in CW mode when [Auto Optimizer] is On.

Target

Parameters	Options	Description
Gain (B [M])	On, Off	Sets whether to use B(M) gain correction including TGC and LGC.
Gain (Color)	On, Off	Sets whether to use color gain compensation.
Gain (D)	On, Off	Sets whether to use Doppler gain compensation.
Sound Speed	On, Off	Sets whether to use speed of sound correction.
Dop Vel./Baseline	On, Off	Sets whether to use Doppler speed range and Doppler baseline shift compensation.
Dop Angle (Freeze)	On, Off	Sets whether to use Doppler detection angle (freeze) compensation.
Doppler Assist Function	On, Off, iVascular	Sets the type of automatic configuration to be used when Auto Optimizer starts. If On is set, Dop Angle (Real) or Dop Cursor Assist (Cardiology) is automatically set. If Off is set, the Doppler cursor is not automatically set. In Dop Angle (Real), correction of the Doppler detection angle (real time) is automatically set. In Dop Cursor Assist (Cardiology), the cross section of a heart is identified, and the position of the sample volume is automatically sets. If iVascular is selected, iVascular is automatically set.

iVascular

Parameters	Options	Description
Auto Color ROI	On, Off	Sets whether to automatically set the position of the flow area when iVascular starts.
Auto Sample Gate	On, Off	Sets whether to automatically set the sample volume when iVascular starts. If On is selected, this sets whether to automatically set Gate Position, Gate Size, and Angle Correct.

Parameters	Options	Description
Region Data Setting	Abdomen, Obstetric, Gynecology, Cardiology, Vascular, Small Parts, Urology, Transvaginal, Transrectal, Operation, Obst. 3D, Cardiac 3D Matrix, CHI, User 1 to User 9	Sets diagnostic region settings associated with applications.

Presets

Parameters	Options	Description
Input Device	Abdomen, Obstetric, Gynecology, Cardiology, Vascular, Small Parts, Urology, Obst. 3D, CHI, CHI-HiMI, CHI-Linear, Cardiac 3D Matrix, CHI-Cardio, *** GP, User 1 to User 9	Sets input devices associated with applications.
Measurement Application	Abdom/Rad, OB, GYN, Cardio, Vascular, URO, S. parts, Other, eTRACKING, Cardio Pediatrics	Sets measurement applications associated with applications.
Measurement study		Sets the measurement study. NOTE: Choices vary depending on the application selected Measurement Application.
Color Map	Abdomen, Obstetric, Gynecology, Cardiology, Vascular, Small Parts, Urology, User 1 to User 9	Sets the color map regions applied to this application.
Probe		Sets probes associated with applications.
Protocol		Sets protocols associated with applications. NOTE: If you select [None], no protocols are set.

(b) Counter

Parameters	Options	Description
Counter (A) Offset	-59 to 0	Configures the counter to start from -59 seconds.
Counter (B) Offset	-59 to 0	Configures the counter to start from -59 seconds.

(2) General tab

(a) Physiology

Parameters	Options	Description
Sweep Speed (B) [mm/s]	40.0, 50.0, 66.7, 100.0, 133.3, 200.0, 300.0	Sets the sweep speed (mm/s) of vital signs on tomographic images.

Parameters	Options	Description
ECG Display Select	ECG, ECG DC IN	Configures the ECG signal to display on the monitor.

Parameters	Options	Description
ECG Lead	I, II, III	Sets the method for leads in an ECG.

(b) R-R Detection

Parameters	Options	Description
R-R Detection	On, Off	Sets whether to start R-R detection after the image is frozen.
Display the optimal R-R automatically	On, Off	Sets whether to automatically display the image in the time phase in which RRp/RRpp is closest to 1 after the image is frozen.
Tachy/Brady Filter	On, Off	Sets whether to exclude the heartbeats for which the R-R interval is outside the range from 0.6 seconds to 1 second in the target sectors from the displayed results of R-R interval detection.
Display the R-R interval time	On, Off	Sets whether to show the R-R interval of the detected heartbeat.

10.3.8 Application parameters: B

(1) Common tab

Parameters	Options	Description
Vertical Shift [mm] (-200 - 100)	-200 to 100	Sets the B mode image display position (vertical direction) in 1-mm increments in relation to the display range.
LGC Type	Linear, V1, V2, V3	Sets the type of gain compensation to apply to an electronic sector probe in the lateral direction.
Standoff	On, Off	Sets to move the initial focus position one step deeper when using a coupler with an electronic linear probe.
Frame Smoothing	On, Off	Runs correlation of previous/next frames and smooths out the image. Sets whether to apply frame smoothing to the image.
HI REZ PLUS	On, Off	Sets whether to apply a filter that reduces speckle noise to clarify the tissue structure.

Parameters	Options	Description
PAN Zoom Start Ratio	1.1, 1.5, 2.0	Sets the zoom ratio when PAN Zoom starts.
Focus Limitation in the Screen	On, Off	Limits the focal position to inside the US image.

(a) HI Zoom

Parameters	Options	Description
Area Width (HI Zoom)	25 to 100	Sets the ROI width in 5% steps when HI Zoom starts.
Area Height (HI Zoom)	25 to 100	Sets the ROI height in 5% steps when HI Zoom starts.
Area Depth (HI Zoom)	1 (Shallow) 2 (Center) 3 (Deep)	Sets the ROI depth when HI Zoom starts.
Reference Display	On, Off	Sets whether to display the reference image when zooming.

(b) DSD

Parameters	Options	Description
DSD Speed	1/2, 1/3, 1/4, 1/10	Sets the playback speed of slow-motion images when the DSD mode starts.
DSD Refresh Timing [s]	1 to 10	Sets the time until slow-motion images refresh in 1-second increments when D.S.D mode is started in DSD (time).

(2) Puncture tab

Parameters	Options	Description
Puncture Guide Line	On, Off	Sets the following to be used at application startup: whether to display the puncture guide line.
Puncture Guide Line Color	White, Green	Sets the puncture guide line display color.
Puncture Angle Select	1 to 9	Sets the puncture angle, the distance from the ultrasonic irradiation area to the puncture guide line, or the active puncture guide line. NOTE: The puncture guide line settings specified by using the options vary depending on the probe.
Needle Emphasis	On, Off	Sets improved visibility for the puncture needle echo.
Angle Select (NE)	-30 to 30	When the linear probe is used and [Needle Emphasis] is set to On, this sets the angle of Graphic Line 2 in 5-degree increments. NOTE: The maximum angle value varies depending on the probe. NOTE: If a convex probe is used, the value that is set for the preset is displayed and the value cannot be changed.

Parameters	Options	Description
Puncture Link (NE)	On, Off	When the linear probe is used and [Needle Emphasis] is set to On, this displays Graphic Line 1 as close to perpendicular to the puncture guide line as possible.
Emphasis Level(NE)	Low, Mid, High	Allows you to adjust the degree of emphasis for improving the visibility if [Needle Emphasis] is set to On when a convex probe is used.
Puncture Display Pattern	Single, Multi	Sets the display pattern of puncture guide lines.

(3) Range tab

Parameters	Options	Description
7.5 mm to 400 mm		Sets the range to use.

10.3.9 Application parameters: M

(1) Common tab

Parameters	Options	Description
FAM Cursor Number	2, 3	Sets the number of FAM cursors when FAM mode is started.
MAG (FAM)	x0.5, x0.75, x1.00, x1.50, x2.00	Sets the FAM mode image depth display magnification for B mode images when FAM mode is started.
PSAX	On, Off	Sets whether to join the FAM cursors at their midpoints at a uniform angle when the FAM mode is started.
Trace Fit	On, Off	Sets whether to match the FAM cursor length to the diagnostic distance of the B mode image when started in FAM mode.
Scan Area (FAM)	25 to 100, Auto	Sets the B mode image scan area when started in FAM mode.
Sweep Speed (M) [mm/s]	40.0, 50.0, 66.7, 100.0, 133.3, 200.0, 300.0	Sets the sweep speed (mm/s) when started in M mode or FAM mode.

10.3.10 Application parameters: Doppler

(1) Common tab

Parameters	Options	Description
Sweep Speed (Single D) [mm/s]	40.0, 50.0, 66.7, 100.0, 133.3, 200.0, 300.0	Sets the sweep speed (mm/s) when D mode is started.

Parameters	Options	Description
Sweep Speed (Dual D) [mm/s]	40.0, 50.0, 66.7, 100.0, 133.3, 200.0, 300.0	Sets the sweep speed (mm/s) when Dual Gate Doppler is started.
Beam Steer (D) [deg]	-30 to 30	Sets the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. NOTE: The steering angle range varies depending on the probe.
Steering Link	On, Off	Sets the linkage between Invert Spectrum and Invert Color Map.
Invert Spectrum	On, Off	Sets whether to invert the display of the Doppler image when D mode is started.
High Pulse Repetition Frequency	On, Off	Sets whether High Pulse Repetition Frequency runs when the flow velocity range has been raised.
Triplex Frame Rate	Low Medium High	Sets the frame rate when B/CF/D modes are started.
D2 is assigned TDI	On, Off	Sets the D2 cursor to TDI when Dual Gate Doppler is started. NOTE: If the image is displayed in TDI mode, TDI is set for the D2 cursor even if the D2 is assigned TDI setting is Off.
Angle Correct Threshold [deg] (0 - 80)	0 to 80	Sets the threshold value for inverted display of angle correction values.
Angle Correction [deg] (-80 - 80)	-80 to 80	Sets the angle correction value when D mode is started.
Angle Correct Value Display	On, Off	Sets the angle correction value display when the D cursor is displayed.
Dop Cursor Assist	Off	Does not set the position of the sample volume.
	Cardiology	Identifies the cross section of a heart, and automatically sets the position of the sample volume.
	General	Temporarily memorizes a B mode image and automatically sets the sample volume at the position of the memorized image.
Dop Vel./Baseline Assist	On, Off	While a D waveform is displayed, the Doppler speed range and Doppler baseline are automatically set to the optimum values.

(a) Dual Dop Auto Measurement

Parameters	Options	Description
Dual Dop Auto Measurement	On, Off	Sets whether to perform automatic measurement if Dual Gate Doppler is selected.

Parameters	Options	Description
Procedure step 1	- TDI PW MA TDI PW1 TDI PW2	Sets a measurement that is to be started after Trans M Flow measurement finishes. If a hyphen ('-') is selected, no measurement is started.
Procedure step 2	- TDI PW MA TDI PW1 TDI PW2	Sets a measurement that is to be started after the measurement set by Procedure step 1 finishes. If a hyphen ('-') is selected, no measurement is started.
Procedure step 3	- TDI PW MA TDI PW1 TDI PW2	Sets a measurement that is to be started after the measurement set by Procedure step 2 finishes. If a hyphen ('-') is selected, no measurement is started.

(2) Auto Trace tab

Parameters	Options	Description
Measurement Transfer List-Freeze	Auto	Specifies that the menu for transferring measurement memory is to be displayed when the [Freeze] key is pressed.
	Manual	Hides the menu for transferring measurement memory when the [Freeze] key is pressed.
Measurement Transfer List-Doppler Auto Trace	Auto	Specifies that the menu for transferring measurement memory is to be displayed when [Doppler Auto Trace] is selected during a freeze.
	Manual	Hides the menu for transferring measurement memory when [Doppler Auto Trace] is selected during a freeze.
Measurement Transfer List-Measurement	Auto	Sets to display the menu for transferring measurement memory when the [Measurement] key is pressed if the results of auto-Doppler trace are displayed.
	Manual	Hides the menu for transferring measurement memory if the [Measurement] key is pressed while the results of an auto-Doppler trace are displayed.
Measurement Start	Off	Does not start measurement.
	Freeze	Starts the measurement specified for [Measurement] on the Auto Trace tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [Doppler]) when the [Freeze] key is pressed.
	Meas. Key	Starts the measurement specified for [Measurement] on the Auto Trace tab in the preset ([Preset Setup] > [Application] > [Edit Data] > [Doppler]) when the [Caliper] key is pressed.
Measurement	FV(Artery), FV(Vein)	Sets the Measurements menu item that shows the measurement result of Doppler Auto Trace.
Doppler Auto Trace	On, Off	Sets to launch automatic trace when displaying in the D mode.
Trace Smooth	Low, High	Sets the smoothness level of the trace line.

Parameters	Options	Description
Trace Direction	Toward	Sets the traced region for Doppler Auto Trace to above the baseline.
	Away	Sets the traced region for Doppler Auto Trace to below the baseline.
	Both	You can freely change the traced region for Doppler Auto Trace to the region above or below the baseline.
	Auto	Sets the traced region for Doppler Auto Trace to switch automatically. If the baseline is in the center of the image, or below the center, the area above the baseline is targeted. If the baseline is above the center of the image, the area below the baseline is targeted.
Trace Threshold	-22 to 0	Sets the trace domain to the Doppler signal
Freeze Trigger	On, Off	Sets to display a trace line upon freezing.
Trace Result	One	Displays the measurement results from a trace of a single heartbeat in Doppler Auto Trace.
	Average	Displays the measurement results from the average of multiple heartbeat traces in Doppler Auto Trace.
Average	1 to 15, All	Sets the heart rate used to obtain the mean value of the measurement results when multiple heartbeats are traced using Doppler Auto Trace.
Mean Trace	On, Off	Displays the mean trace line of the Doppler waveform during Doppler Auto Trace. NOTE: You need to set Vm of Display Item to On.
Heartbeat detection for ECG	On	Detects heartbeats from the ECG waveform in Doppler Auto Trace.
	Off	Detects heartbeats from the trace line in Doppler Auto Trace.

(a) Display Item

Parameters	Options	Description
PI	On, Off	Sets whether to display the PI measurement parameter of Doppler Auto Trace.
RI	On, Off	Sets whether to display the RI measurement parameter of Doppler Auto Trace.
S/D	On, Off	Sets whether to display the S/D measurement parameter of Doppler Auto Trace.
D/S	On, Off	Sets whether to display the D/S measurement parameter of Doppler Auto Trace.
HR	On, Off	Sets whether to display the HR measurement parameter of Doppler Auto Trace.
ACC	On, Off	Sets whether to display the ACC measurement parameter of Doppler Auto Trace.

Parameters	Options	Description
Vm	On, Off	Sets whether to display the Vm measurement parameter of Doppler Auto Trace. NOTE: You need to set Mean Trace to On.
EDV	On, Off	Sets whether to display the EDV measurement parameter of Doppler Auto Trace.
MnV	On, Off	Sets whether to display the MnV measurement parameter of Doppler Auto Trace.
FlowT	On, Off	Sets whether to display the FlowT measurement parameter of Doppler Auto Trace.
PSV	On, Off	Sets whether to display the PSV measurement parameter of Doppler Auto Trace.
AccT	On, Off	Sets whether to display the AccT measurement parameter of Doppler Auto Trace.
VTI	On, Off	Sets whether to display the VTI measurement parameter of Doppler Auto Trace.

10.3.11 Application parameters: Color

(1) Common tab

Parameters	Options	Description
Accumulation Time [sec]	0.25, 0.5, 0.75, 1, 2, 3, 4, 8, Continuous	Sets the [Accumu. Imaging] accumulation time. The color Doppler display is updated at the specified time. The color Doppler display is not updated if the setting is [Continuous].
Vector Scan (Color, PW)	On, Off	Sets the scan method to a vector scan when a Trapezoidal Scan is started in CF mode, PD mode, eFlow mode, or DFI mode.
Focus Control (Color)	Auto	Sets the focus position to be automatically adjusted in color Doppler mode.
	Manual	Sets the focus position to be manually adjusted in color Doppler mode.
Dual CF Offset Gain (-30 - 30)	-30 to 30	Sets the gain compensation value to apply to B mode gain when Dual CF starts with a B+ color Doppler image.
Beam Steer (Color) [deg]	-30 to 30	Sets the steering angle of the ultrasound beam in an electronic linear probe, in 5-degree increments. NOTE: The steering angle range varies depending on the probe.
Sensitivity Priority	On, Off	Sets the condition for projection repeat frequency (PRF) when starting in CF mode to detection sensitivity priority.
Wall Motion Reduct Type	A, B	Sets the type of body movement in CF mode, PD mode, or eFlow mode. B has a stronger effect than A for removing body movement.

(a) Power Doppler

Parameters	Options	Description
Directional	On, Off	Sets the Directional display when started in PD mode.
Sensitivity Priority	On, Off	Sets the condition for projection repeat frequency (PRF) when started in PD mode to detection sensitivity priority.

(b) eFlow

Parameters	Options	Description
Directional	On, Off	Sets the Directional display when started in eFlow mode.
Sensitivity Priority	On, Off	Sets the condition for projection repeat frequency (PRF) when started in eFlow mode to detection sensitivity priority.

(c) DFI

Parameters	Options	Description
Directional	On, Off	Sets the directional display when DFI mode starts.
DFI Image Priority	Reso, Pene	Sets the DFI transmission and reception method.

(d) Color Flow

Parameters	Options	Description
Colormap CF Intensity	On, Off	Sets whether to display the CF image by referencing the intensity of the color Doppler signals when CF mode starts.
Variance Inactive/ Variance Active	Variance Inactive	If Colormap CF Intensity is On, this displays the CF image without using decentralized information.
	Variance Active	If Colormap CF Intensity is On, this displays the CF image by using decentralized information.

10.3.12 Application parameters: Tissue Dop.**(1) PW tab**

Parameters	Options	Description
Invert Spectrum	On, Off	Sets whether to invert the display of the Doppler image when TDI mode is started.

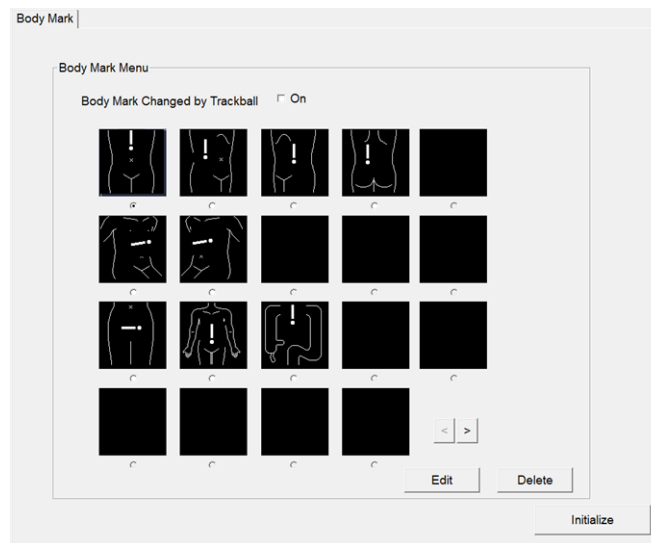
10.3.13 Application parameters: Body Mark

The Body Mark parameter is for editing the Body Mark menu.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
4. Select [Edit Data].

5. Select [Body Mark] from the list of items.
6. Use Body Mark Changed by Trackball to configure to make changes to body marks by using the trackball.



Setting the default body marks to display

Select the radio buttons for the desired body marks.

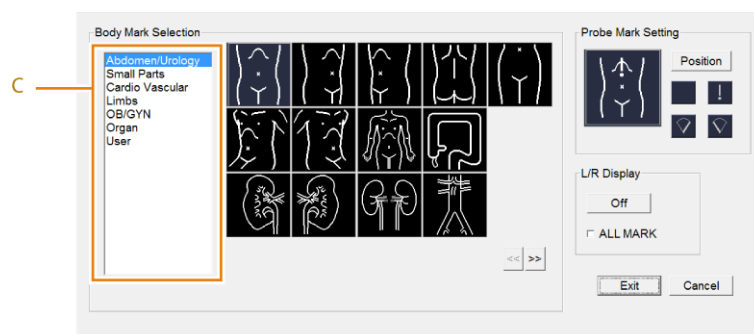
Deleting body marks (leaving the field blank)

- a. Select the body mark to be deleted.
- b. Select [Delete].

Replacing menus

- a. Select the body mark to be replaced.
- b. Select [Edit].
- c. Select the body mark type in Body Mark Selection.
- d. Select the desired body mark.

The page can be switched using [<<] and [>>] at the bottom right.



Setting probe marks

- a. Select a probe mark.
- b. Select [Position].
- c. Use the trackball to move the position of the probe mark.

- d. Turn the [Pointer] rotary encoder to set the angle of the probe mark.
- e. Press the [Enter] key.



Setting the left/right display

- a. Sets the left/right display (L or R display) under L/R Display.

Applying all body marks which can be used with L/R display

Check the ALL MARK check box.

Remove the check mark to make settings for each body mark.

7. Select [Exit].

To return to the prior screen without making changes:

Select [Cancel].

8. Repeat steps 6 and 7 for the body marks you wish to change.
9. Select [Save].

10.3.14 Application parameters: EyeballEF

(1) Display Setting tab

Parameters	Options	Description
Transparency (0 - 100)	0 to 100	Sets the transparency ratio of ROIs.
Color		Sets the transparency color of ROIs.

(a) ROI

Parameters	Options	Description
Display Long Axis	On, Off	Sets whether to display the long axis on the ultrasonic image.
Display of Freeze OFF	On, Off	Sets whether to display the analysis results on the ultrasonic image if freeze is disabled.

(b) Analysis Result

Parameters	Options	Description
Display of Freeze OFF	On, Off	Configures the display of analysis results inside the analysis results when freeze is off.
Volume	On, Off	Sets the display of Volume within the analysis results frame.

Parameters	Options	Description
Stroke Volume	On, Off	Sets the display of Stroke Volume within the analysis results frame.
Ejection Fraction	On, Off	Sets the display of Ejection Fraction within the analysis results frame.
%dif	On, Off	Sets whether to display %difD and %difS.
GLS	On, Off	Sets the display of GLS within the analysis results frame.

(c) Graph

Parameters	Options	Description
The Maximum of The Spindle is set.	On, Off	Sets whether to use the user-specified value (see the next item) for the maximum value of the vertical axis of a graph.
	0 to 200	Sets the maximum value (ml) of the vertical axis of a graph.

(2) Analysis Setting tab

(a) Analysis Setting

Parameters	Options	Description
Auto	On, Off	Sets whether to automatically set the region analysis method.
A4C	On, Off	Sets whether to set A4C as the region analysis method.
A4C->A2C	On, Off	Sets whether to set A4C and A2C, in that order, as the region analysis methods.

(b) Time From End-Diastole

Parameters	Options	Description
Time from End-Diastole	On, Off	Sets whether to set the end systole to the time phase the specified time (see the next item) after the end diastole.
	150 to 400	Sets the offset time (ms) from the end diastole.
Calculation from Volume	On, Off	Sets whether to calculate the end systole from the volume.

(3) Function Setting tab

(a) Systole Edit

Parameters	Options	Description
Set three points.	On, Off	Sets whether to set Three points Set. as the systole editing method.
Correct the tracking results.	On, Off	Sets whether to set The tracking is corrected. as the systole editing method.

(b) After Freeze

Parameters	Options	Description
All Correct.	On, Off	Sets whether to correct all items.
It skips to correction of ROI.	On, Off	Sets whether to skip the correction procedures for some items to make corrections for only the ROIs of the end-diastolic image and end-systolic image.

10.3.15 Application parameters: Auto FHR+**(1) Common tab**

Parameters	Options	Description
Time Scale [sec]	3, 5, 10, 20, 30, 60, 120, 180	Sets the length of the horizontal axis of the heart rate waveform.
Ref. Line	On, Off	Sets whether to display dotted lines that indicate the tachycardia and bradycardia levels if the heart rate baseline is displayed.
Ref. Line U [BPM]	140 to 180	Sets the tachycardia level for the heart rate baseline.
Ref. Line L [BPM]	90 to 130	Sets the bradycardia level for the heart rate baseline.
Cardiac Cycles #	1 to 10	Set the number of heartbeats that are used to obtain the average heart rate.
FH Sound	On, Off	Sets whether to enable a function that sounds a beep in synchronization with the peak of a heart rate waveform.
Frame Rate Auto Increase(30FPS)	On(Scan Area Adjustment), Off	Automatically adjusts the Scan Area so that, when the frame rate is less than 30 fps, the frame rate can take priority and become 30 fps. NOTE: Frame rate cannot be automatically adjusted for Trapezoidal Scanning.
Min. Scan Area[%]	25, 30, 35, 40, 45, 50	Sets the minimum width (%) for the Scan Area when Frame Rate Auto Increase(30FPS) is set to On.

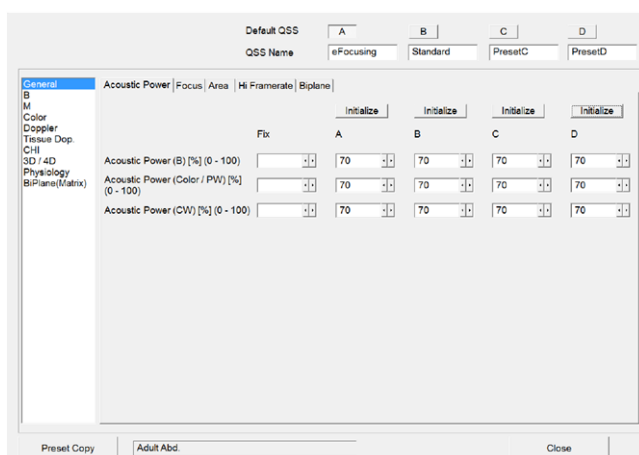
10.3.16 Application parameters: Protocol

Parameters	Options	Description
Next View Trigger	Store & UnFreeze, Store	Sets the method of transition to the next view.
Disp. Complete Dialog	On, Off	Sets whether to display a protocol end confirmation dialog box when the settings for all views are completed.
Measurement Trigger	Measurement, Freeze	Sets the timing at which measurement is to be started if a measurement is registered for the view.
Use Guide View	On, Off	Sets whether to display a reference image when the protocol is started.
Disp. Report	On, Off	Sets whether to display a report when a protocol ends.

Parameters	Options	Description
Start in B Mode	On, Off	The system displays images in B mode when switching the display mode to color Doppler mode or a view registered in D mode.
Close Measurement	On, Off	Stops measurement if measurement has not completed when you switch from a view with a registered measurement to the next view.

10.4 QSS presets

QSS (Quick Scanning Selector) presets are for making batch changes to settings corresponding to the body shape or organs of the test subject. You can change the QSS preset without changing the application.



Example of QSS preset settings

In QSS presets, image quality-related parameters (gain, dynamic range, etc.) are collected in each compatible mode. The corresponding modes are classified as follows:

Classification of QSS presets by corresponding mode

Item	Description	Reference
General	Configures parameters not classified below.	
B	B mode-related settings	
M	M mode-related settings	
Color	CF mode-related settings	
Doppler	D mode-related settings	
Tissue Dop.	TDI mode-related settings	
CHI	Contrast Harmonic Imaging-related settings	Separate manual "Advanced Operations 2"
3D/4D	Settings related to 3D/4D	Separate manual "Advanced Operations 3"
Physiology	Settings related to physiological signals	

Item	Description	Reference
BiPlane(Matrix)	Settings related to the 2D array probe	Separate manual "Advanced Operations 3"

10.4.1 Editing QSS presets

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Application].
3. From the Application View field, select the desired application.
4. Select [Edit Data].
5. Select [QSS] to edit the presets.

Sets the following to be used at application startup: the QSS preset to be used first.

Select the relevant button under Default QSS (1 in diagram below).

Changing Names

In QSS Name (2 in the figure below), enter the QSS preset name. Enter no more than 16 characters.

Changing parameters

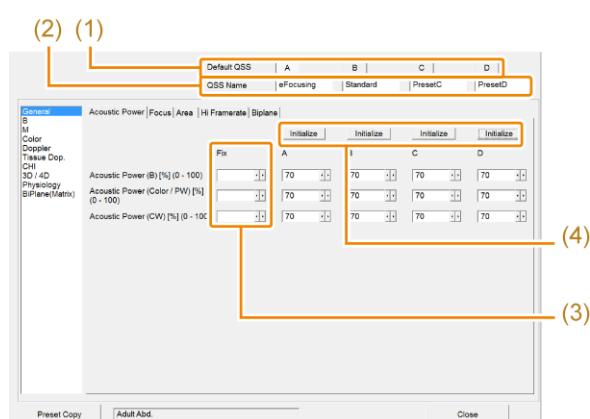
- a. Select a category.
- b. Select a tab.
- c. Change the parameter.

Changing the Fix column

If the parameters are set in the Fix column (3 in the figure below), the settings are applied to presets from A to D.

If any of the columns A through D are changed, the Fix column is shown blank.

- d. Repeat steps a - c for the parameters concerned.
- Items that have been changed from their factory default settings are highlighted.



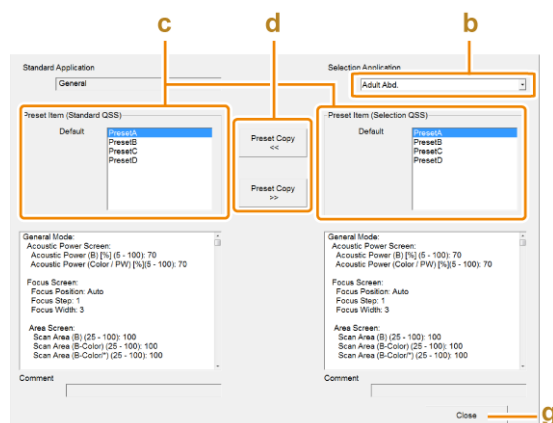
Returning to the factory default settings

Select [Initialize] (4 in diagram above) in the desired QSS preset column.

The applicable QSS presets are restored to their factory default settings.

Copying QSS presets

- Select [Preset Copy].
- Select an application as the copy destination or source.
- Set the QSS presets for the copy source and copy destination.
- If the copy destination is on the left, select [Preset Copy<<], and if it is on the right, select [Preset Copy>>].
- Enter the name for the QSS preset in the dialog box.
- Select [OK].
- Select [Close].



Copying QSS presets



Step e dialog box

- Select [Close].

10.4.2 QSS parameter: General

(1) Acoustic Power tab

Parameters	Options	Description
Acoustic Power (B) [%] (0 - 100)	0 to 100	Sets the ultrasonic output power at startup of B mode or M mode in 1% increments.
Acoustic Power (Color/PW) [%] (0 - 100)	0 to 100	Sets the acoustic power in increments of 1% when color Doppler mode or PW mode starts.
Acoustic Power (CW) [%] (0 - 100)	0 to 100	Sets the ultrasonic output power at startup of CW mode, in 1% increments.

(2) Focus tab

Parameters	Options	Description
Focus Position	F16 to F1, Auto	Sets the focus position in the B mode image.
Focus Step	1 to 4	Sets the number of focus steps in the B mode image.
Focus Width	2 to 15	Sets the focus combination in the B mode image.

(3) Area tab

Parameters	Options	Description
Scan Area (B) (25 - 100)	25 to 100	Sets the scan area for B mode images, in 5% increments.
Scan Area (B-Color) (25 - 100)	25 to 100	Sets the B mode scan area for B (Color) mode images in 5% increments.
Scan Area (B-Color/*) (25 - 100)	25 to 100	Sets the scan area for B mode images during B (Color)/* mode operation in 5% increments.

(4) Hi Framerate tab

Parameters	Options	Description
eFocusing	On, Off	Sets the following to be used at application startup: whether to use the transmission aperture synthesis processing method (eFocusing) for B mode images.
HI Frame (B)	On, Off	Sets the following to be used at application startup: the high frame rate display for B mode images
HI Frame (Color)	On, Off	Sets the following to be used at application startup: the high frame rate display for color Doppler mode images

(5) Biplane tab

Parameters	Options	Description
Focus Position [L]	F16 to F1, Auto	Sets the focus position in the longitudinal plane B mode image when a 1-connector-type biplane probe is connected.
Focus Position [T]	F16 to F1, Auto	Sets the focus position in the lateral plane B mode image when a 1-connector-type biplane probe is connected.
Focus Step [L]	1 to 4	Sets the number of focus steps in the longitudinal plane B mode image when a 1-connector-type biplane probe is connected.
Focus Step [T]	1 to 4	Sets the number of focus steps in the lateral plane B mode image when a 1-connector-type biplane probe is connected.
Focus Width [L]	2 to 15	Sets the focus combination in the longitudinal plane B mode image when a 1-connector-type biplane probe is connected.
Focus Width [T]	2 to 15	Sets the focus combination in the lateral plane B mode image when a 1-connector-type biplane probe is connected.

10.4.3 QSS parameter: B

(1) B1 tab

Parameters	Options	Description
Initial Range [mm]	7.5 to 400	Sets the following to be used at application startup: the display range for B mode images.
Tx Mode	Fundamental Tissue Harmonic Coded Imaging	Sets the following to be used at application startup: the observation mode.
Frequency (Fundamental)	5 (High), 4, 3 (Middle), 2, 1 (Low)	Sets the following to be used at application startup: the transmission frequency (for fundamental).
Tissue Harmonic Mode	FmT, WbT, HdT,	Sets the following to be used at application startup: the method to use when the transmission mode is [Tissue Harmonic].
Frequency (FmT)	5 (High), 4, 3 (Middle), 2, 1 (Low)	Sets the following to be used at application startup: the transmission frequency (for FmT).
Frequency (WbT)	5 (High), 4, 3 (Middle), 2, 1 (Low)	Sets the following to be used at application startup: the transmission frequency (for WbT) .
Frequency (HdT)	5 (High), 4, 3 (Middle), 2, 1 (Low)	Sets the following to be used at application startup: the transmission frequency (for HdT).
Frequency (Coded Imaging)	5 (High), 4, 3 (Middle), 2, 1 (Low)	Sets the following to be used at application startup: the transmission frequency (for encoded transmission).

(2) B2 tab

Parameters	Options	Description
Gain (0-80)	0 to 80	Sets the following to be used at application startup: the B gain, in 1-dB increments.
Dynamic Range (B)	40 to 90	Sets the following to be used at application startup: the Dynamic Range (B) .
Line Density (B)	1 to 8	Sets the following to be used at application startup: the line density (B) for B mode images. Line density increases when the level goes up, and decreases when the level goes down.
Line Density [Hi Zoom] (B)	1 to 8	Sets the line density (B) to apply when Hi Zoom (B Mode) starts. Line density increases when the level goes up, and decreases when the level goes down.
PRF (B/M)	High, Mid, Low	Changes the pulse repetition frequency. The upper limit on pulse repetition frequency increases in the order [Low], [Mid], [High].

Parameters	Options	Description
Persistence Level (B)	0 to 7	Sets the following to be used at application startup: the level of correlation processing (Persistence) to apply between image frames. When [0], no correlation processing is performed.
Persistence Level [Compound] (B)	0 to 7	Configures the level of correlation processing (Persistence) between the image frames at Compound start-up. When [0], no correlation processing is performed.
Persistence Type (B)	Manual, Auto	Configures the method of correlation processing (Persistence) between image frames. Specifies that correlation processing (persistence) is to be performed between image frames that depend on the number of frames when [Manual] is set, and on both the frame rate and number of frames when [Auto] is set. NOTE: When [Compound] is On, [Auto] is not available.
AGC (B)	0 to 7	Sets the following to be used at application startup: the AGC(B).
Graymap	1 to 10	Sets the following to be used at application startup: the gray map to be applied to B mode images.
Color Map	A to O	Sets the following to be used at application startup: the color map to be applied to B mode images.

(3) B3 tab

Parameters	Options	Description
Compound	On, Off	Sets the following to be used at application startup: whether to use compound startup.
Compound #	2, 1	When [Trapezoidal Scanning] is set to Off, this sets the following to be used at application startup: the number of Compound addition layers.
Angle (Compound)	5 to 30	When [Trapezoidal Scanning] is set to Off, this sets the compound steering angle in 5-degree increments. NOTE: The maximum steering angle value varies depending on the probe.
Trapezoidal Scanning	On, Off	Sets whether Trapezoidal Scanning is started when the application starts.
Compound # (Trapezoidal)	2, 1	When [Trapezoidal Scanning] is set to On, this sets the following to be used at application startup: the number of Compound addition layers.
Angle (Trapezoidal Compound)	5 to 30	When [Trapezoidal Scanning] is set to On, this sets the compound steering angle in 5-degree increments. NOTE: The maximum steering angle value varies depending on the probe.
Beam Steer (B) [deg]	-30 to 30	Sets the following to be used at application startup: the electronic linear probe steering angle of the ultrasound beam, in 5-degree increments. NOTE: The steering angle range varies depending on the probe.

Parameters	Options	Description
Wide Scanning	On, Off	Sets whether Wide Scanning is started when the application starts. NOTE: For details about compatible probes, see the separate manual "Instructions for Use".
Compound # (Wide)	2, 1	When [Wide Scanning] is set to On, this sets the following to be used at application startup: the number of Compound addition layers.
Angle (Wide Compound)	5 to 30	When [Wide Scanning] is set to On, this sets the compound steering angle in 5-degree increments. NOTE: The maximum steering angle value varies depending on the probe.

(4) B4 tab

Parameters	Options	Description
TGC Enhancement	On, Off	Sets the following to be used at application startup: the B mode gain and color flow gain optimization in the depth direction. NOTE: For details about compatible probes, see the separate manual "Instructions for Use".
ANR	Off, 1 to 9	Adjust the level of ANR effect.
NNR	Off, Low, Mid, High	Adjusts the level of NNR effect.
NNR Type	A, B, C, D, E	Select the type of NNR.
Sound Speed [m/s]	1400 to 1650	Sets the speed of sound adjustment level corresponding to the receive focus delay time. [1540] is the standard speed of sound.

(5) B5 tab

Parameters	Options	Description
HI REZ (B)	On, Off	Sets the following to be used at application startup: HI REZ (B).
Smooth/Enhance (B)	-8 to 8	Sets smoothing or edge enhancement levels. The smoothing filter range is from -8 to -1; 0 is no filtering and edge enhancement filtering is from 1 to 8.
HI REZ Level	1 to 8	Changes the HI REZ image filter level when [HI REZ (B)] is On. Changes the BCF image filter level when [HI REZ (B)] is On and [BCF (B)] is On.
Echo Enhancement (B)	0 to 7	Sets the following to be used at application startup: the system to apply image filtering for the gap-filling process in the scan direction to create an image from a weak signal. When [0], no filtering is applied.
Texture	Smooth, Sharp	Displays smoother surfaces of images.

Parameters	Options	Description
BCF (B)	On, Off	Sets whether BCF is used when the application starts. NOTE: This item is valid only if the [HI REZ (B)] setting is On.
Low Echo Reduction (B)	0 to 70	Sets the following to be used at application startup: the level of suppression of hypoechoic areas for B mode images. When 0, no suppression of hypoechoic areas is applied.
Grayscale Enh. (B)	Off, Low, Mid, High	Sets the balance between low brightness and high brightness in the gray scale of B mode images when an application is started.

(6) Post Process tab

Parameters	Options	Description
Gamma Type (B)	Window Type, S-Curve Type, Parabolic Type, Linear Type	Sets the following to be used at application startup: the γ type.
Gamma (B) (-4.0 - 4.0)	-4.0 to 4.0	Sets the following to be used at application startup: the gamma value, in 0.1 increments.
Rejection (B) (0 - 255)	0 to 255	Configures the location of the rise of the curve.
Center (B) (0 - 255)	0 to 255	Sets the location of the center for S-shaped curves.
Saturation (B) (0 - 255)	0 to 255	Configures the saturation location of curves.

(7) Biplane 1 tab

Parameters	Options	Description
Gain (B) [T] (0 - 80)	0 to 80	Sets the following to be used at application startup: the lateral plane B gain, in 1-dB increments.
Gain (B) [L] (0 - 80)	0 to 80	Sets the following to be used at application startup: the B gain of the longitudinal section of 1-connector biplane, in 1-dB increments
Scan Area (B) [T] (25 - 100)	25 to 100	Sets the visual field of transverse section B mode images for 1-connector biplane, in 5% increments.
Scan Area (B) [L] (25 - 100)	25 to 100	Sets the visual field of longitudinal section B mode images for 1-connector biplane, in 5% increments.
Initial Range [T] [mm]	7.5 to 400	Sets the following to be used at application startup: the lateral plane B mode image display range in 1-connector-type biplane.
Initial Range [L] [mm]	7.5 to 400	Sets the following to be used at application startup: the longitudinal plane B mode image display range in 1-connector-type biplane.

Parameters	Options	Description
Tx Mode [T]	Fundamental Tissue Harmonic Coded Imaging	Sets the following to be used at application startup: the lateral plane observation mode in 1-connector-type biplane.
Tx Mode [L]	Fundamental Tissue Harmonic Coded Imaging	Sets the following to be used at application startup: the longitudinal plane observation mode in 1-connector-type biplane.
Frequency (Fundamental) [T]	5 (High), 4, 3 (Middle), 2 , 1 (Low)	Sets the following to be used at application startup: the lateral plane transmission frequency (for fundamental) in 1-connector-type biplane.
Frequency (Fundamental) [L]	5 (High), 4, 3 (Middle), 2 , 1 (Low)	Sets the following to be used at application startup: the longitudinal plane transmission frequency (for fundamental) in 1-connector-type biplane.

(8) Biplane 2 tab

Parameters	Options	Description
Frequency (FmT) [T] Frequency (WbT) [T] Frequency (HdT) [T]	5 (High), 4, 3 (Middle), 2 , 1 (Low)	Sets the following to be used at application startup: the lateral plane transmission frequency (for tissue harmonics) in 1-connector-type biplane.
Frequency (FmT) [L] Frequency (WbT) [L] Frequency (HdT) [L]	5 (High), 4, 3 (Middle), 2 , 1 (Low)	Sets the following to be used at application startup: the longitudinal plane transmission frequency (for tissue harmonics) in 1-connector-type biplane.
Frequency (Coded Imaging) [T]	5 (High), 4, 3 (Middle), 2 , 1 (Low)	Sets the lateral plane transmission frequency (for encoded transmission) to be used in 1-connector-type biplane when the application starts.
Frequency (Coded Imaging) [L]	5 (High), 4, 3 (Middle), 2 , 1 (Low)	Sets the following to be used at application startup: the longitudinal plane transmission frequency (for encoded transmission) to be used in 1-connector-type biplane when the application starts.
Tissue Harmonic Mode [T]	FmT, WbT, HdT	Sets the following to be used at application startup: the method when the lateral plane transmission mode is set to [Tissue Harmonic] in 1-connector-type biplane.
Tissue Harmonic Mode [L]	FmT, WbT, HdT	Sets the following to be used at application startup: the method when the longitudinal plane transmission mode is set to [Tissue Harmonic] in 1-connector-type biplane.

10.4.4 QSS parameter: M

(1) Post Process tab

Parameters	Options	Description
Gamma Type (M)	Window Type, S-Curve Type, Parabolic Type, Linear Type	Sets the following to be used at application startup: the γ type.
Gamma (M) (-4.0 - 4.0)	-4.0 to 4.0	Sets the following to be used at application startup: the gamma value, in 0.1 increments.
Rejection (M) (0 - 255)	0 to 255	Configures the location of the rise of the curve.
Center (M) (0 - 255)	0 to 255	Sets the location of the center for S-shaped curves.
Saturation (M) (0 - 255)	0 to 255	Configures the saturation location of curves.
Gamma Type (FAM)	Window Type, S-Curve Type, Parabolic Type, Linear Type	Sets the following to be used at application startup: the γ type.
Gamma (FAM) (-4.0 - 4.0)	-4.0 to 4.0	Sets the following to be used at application startup: the gamma value, in 0.1 increments.
Rejection (FAM) (0 - 255)	0 to 255	Configures the location of the rise of the curve.
Center (FAM) (0 - 255)	0 to 255	Sets the location of the center for S-shaped curves.
Saturation (FAM) (0 - 255)	0 to 255	Configures the saturation location of curves.

(2) M tab

Parameters	Options	Description
M Offset Gain (-30 - 30)	-30 to 30	Sets the following to be used at application startup: the offset value for the B gain, in 1-dB increments.
Dynamic Range (M)	40 to 90	Sets the following to be used at application startup: the Dynamic Range (M).
Enhancement Level (M)	1 to 4	Sets the following to be used at application startup: the enhancement level.
Graymap	1 to 10	Sets the following to be used at application startup: the gray map to apply to M mode images.
AGC (M)	0 to 7	Sets the following to be used at application startup: the AGC(M).
Echo Enhancement (M)	0 to 7	Sets the following to be used at application startup: the system to apply image filtering for the gap-filling process in the scan direction to create an image from a weak signal. When [0], no filtering is applied.

Parameters	Options	Description
Color Map	A to O	Sets the following to be used at application startup: the color map to be applied to M mode images.
Low Echo Reduction (M)	0 to 70	Sets the following to be used at application startup: the level of suppression of hypoechoic areas for M mode images. When [0], no suppression of hypoechoic areas is applied.
Grayscale Enh. (M)	Off, Low, Mid, High	Sets the balance between the low brightness and high brightness in the gray scale of M mode images when an application is started.

(3) FAM tab

Parameters	Options	Description
Dynamic Range (FAM) [dB]	40 to 90	Sets the following to be used at application startup: the Dynamic Range (M).
Graymap	1 to 10	Sets the following to be used at application startup: the gray map to apply to M mode images.
Low Echo Reduction (FAM)	0 to 70	Sets the following to be used at application startup: the level of suppression of hypoechoic areas for FAM mode images. When [0], no suppression of hypoechoic areas is applied.
Grayscale Enh. (FAM)	Off, Low, Mid, High	Sets the balance between low brightness and high brightness in the gray scale of FAM mode images when an application is started.

10.4.5 QSS parameter: Color

(1) Area tab

Parameters	Options	Description
Area Width (Flow) (5 - 100)	5 to 100	Sets the following to be used at application startup: the flow area width, in 5% increments.
Area Width (Flow/*) (5 - 100)	5 to 100	Sets the flow area width in 5% increments when using Flow/*mode.
Area Height (Flow) (25 - 100)	25 to 100	Sets the following to be used at application startup: the flow area height, in 5% increments.
Area Depth (Flow)	1 (Shallow) 2 (Center) 3 (Deep)	Sets the following to be used at application startup: the flow area depth, in 5% increments.

(2) Color Flow 1 tab

Parameters	Options	Description
Ref. Frequency (Color Flow)	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the reference frequency (transmission frequency) for CF mode.

Parameters	Options	Description
Gain (Color Flow) (0 - 127)	0 to 127	Sets the following to be used at application startup: the CF gain.
Line Density (Color Flow)	1 to 8	Sets the following to be used at application startup: the line density (CF) for CF mode images. Line density increases when the level goes up, and decreases when the level goes down.
Line Density [Hi Zoom] (Color Flow)	1 to 8	Sets the line density (CF) to apply when Hi Zoom (CF Mode) starts.
Line Density (Color Flow (BW))	1 to 8	Sets the scanning line density (B) in CF mode.
Line Density [Hi Zoom] (Color Flow(BW))	1 to 8	Sets the line density (B) to apply when Hi Zoom (CF Mode) starts.
Velocity Range (CF)	0.63 to 458.33	Sets the following to be used at application startup: the velocity range for CF mode. NOTE: The velocity range varies depending on the probe.
Persistence Level	0 to 7	Sets the following to be used at application startup: the level of correlation processing (Persistence) to apply between image frames. When [0], no correlation processing is performed.
Wall Filter	1 to 6	Sets the level for removing unnecessary signals due to wall movement.
Packet Size	Large	Displays high-definition CF images. With this setting, the frame rate is lower than that for Middle.
	Middle	Sets a medium packet size (between Large and Small).
	Small	Displays low-definition CF images. With this setting, the frame rate is higher than that for Middle.
Wall Motion Reduction	Off Low Middle High	Sets the level for removing clutter signal (wall motion noise).

(3) Color Flow 2 tab

Parameters	Options	Description
Smoothing	0 to 4	Sets the smoothness level for displaying the CF image.
Variance Enhance	1 to 8	Sets the variance level for displaying the CF image.
Color Map	A to O	Sets the following to be used at application startup: the color map to be applied to CF mode.
Color Map (CF Intensity)	A to O	If Colormap CF Intensity is On, this sets the color map to be applied to CF mode.
Display Priority: BW Threshold	0 to 16	Sets the monochrome brightness threshold value for parts of the B mode image that are deemed to be tissue and have color removed.

Parameters	Options	Description
Display Priority: BW Coefficient	1 to 10	Sets the monochrome brightness correction coefficient for parts of the B mode image that are deemed to be tissue and have color removed.
Flow Edge	Off	Does not suppress the protrusion of color into tissue.
	Low Middle High	Changes the suppression level of protrusion of color into tissue.
Texture	Smooth, Sharp	Sets whether to display smooth CF images or sharp CF images.
Glossy Level	Off, 1 to 4	Sets the glossy level of the CF image.

(4) Power Doppler 1 tab

Parameters	Options	Description
Ref. Frequency (Power Doppler)	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the reference frequency (transmission frequency) for PD mode.
Gain (Power Doppler) (0 - 127)	0 to 127	Sets Power Doppler gain.
Line Density (Power Doppler)	1 to 8	Sets the following to be used at application startup: the line density (PD) for PD mode images. Line density increases when the level goes up, and decreases when the level goes down.
Line Density [Hi Zoom] (Power Doppler)	1 to 8	Sets the line density (PD) to apply when Hi Zoom (PD Mode) starts.
Line Density (Power Doppler(BW))	1 to 8	Sets the scanning line density (B) in PD mode.
Line Density [Hi Zoom] (Power Doppler(BW))	1 to 8	Sets the line density (B) to apply when Hi Zoom (PD mode) starts.
Velocity Range (PD)	0.63 to 458.33	Sets the following to be used at application startup: the velocity range for PD mode. NOTE: The velocity range varies depending on the probe.
Persistence Level	0 to 7	Sets the following to be used at application startup: the level of correlation processing (Persistence) to apply between image frames. When [0], no correlation processing is performed.
Wall Filter	1 to 6	Sets the level for removing unnecessary signals caused by wall movement in order to show just the blood flow signal. Raising the level increases the frequencies to be removed.

Parameters	Options	Description
Packet Size	Large	Displays high-definition PD images. With this setting, the frame rate is lower than that for Middle.
	Middle	Sets a medium packet size (between Large and Small).
	Small	Displays low-definition PD images. With this setting, the frame rate is higher than that for Middle.
Wall Motion Reduction	Off Low Middle High	Sets the level for removing clutter signal (wall motion noise).

(5) Power Doppler 2 tab

Parameters	Options	Description
Smoothing	0 to 4	Sets the smoothness level for displaying the PD image.
Dynamic Range	1 to 16	Sets the following to be used at application startup: the Dynamic Range (PD).
Color Map (PD)	A to O	Sets the following to be used at application startup: the color map to be applied to PD mode.
Display Priority: BW Threshold	0 to 16	Sets the monochrome brightness threshold value for parts of the B mode image that are deemed to be tissue and have PD removed.
Display Priority: BW Coefficient	1 to 10	Sets the monochrome brightness correction coefficient for parts of the B mode image that are deemed to be tissue and have PD removed.
Color Map (Dir.-PD)	A to O	Sets the following to be used at application startup: the color map to be applied to Directional PD mode.
FlowEdge	Off	Does not suppress the protrusion of color into tissue.
	Low Middle High	Changes the suppression level of protrusion of color into tissue.
Texture	Smooth, Sharp	Sets whether to display smooth PD images or sharp PD images.
Glossy Level	Off, 1 to 4	Sets the glossy level of the PD image.

(6) eFlow 1 tab

Parameters	Options	Description
Ref. Frequency (eFlow)	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the reference frequency (transmission frequency) for eFlow mode.
Gain (eFlow) (0 - 127)	0 to 127	Sets the following to be used at application startup: the eFlow gain.

Parameters	Options	Description
Line Density (eFlow)	1 to 8	Sets the following to be used at application startup: the line density (eFlow) for eFlow mode images. Line density increases when the level goes up, and decreases when the level goes down.
Line Density [Hi Zoom] (eFlow)	1 to 8	Sets the line density (eFlow) to apply when Hi Zoom (eFlow mode) starts.
Line Density (eFlow(BW))	1 to 8	Sets the scanning line density (B) in eFlow mode.
Line Density [Hi Zoom] (eFlow(BW))	1 to 8	Sets the line density (B) to apply when Hi Zoom (eFlow mode) starts.
Velocity Range (eFlow)	0.63 to 458.33	Sets the following to be used at application startup: the velocity range for eFlow mode. NOTE: The velocity range varies depending on the probe.
Persistence Level	0 to 7	Sets the following to be used at application startup: the level of correlation processing (Persistence) to apply between image frames. When [0], no correlation processing is performed.
Wall Filter	1 to 6	Sets the level for removing unnecessary signals caused by wall movement in order to show just the blood flow signal. Raising the level increases the frequencies to be removed.
Packet Size	Large	Displays high-definition eFlow images. With this setting, the frame rate is lower than that for Middle.
	Middle	Sets a medium packet size (between Large and Small).
	Small	Displays low-definition eFlow images. With this setting, the frame rate is higher than that for Middle.
Wall Motion Reduction	Off Low Middle High	Sets the level for removing clutter signal (wall motion noise).

(7) eFlow 2 tab

Parameters	Options	Description
Smoothing	0 to 4	Sets the smoothness level for displaying the eFlow image.
Dynamic Range	1 to 16	Sets the following to be used at application startup: the Dynamic Range (eFlow).
Color Map (eFlow)	A to O	Sets the following to be used at application startup: the color map to be applied to eFlow mode.
Display Priority: BW Threshold	0 to 16	Sets the monochrome brightness threshold value for parts of the B mode image that are deemed to be tissue and have eFlow removed.
Display Priority: BW Coefficient	1 to 10	Sets the monochrome brightness correction coefficient for parts of the B mode image that are deemed to be tissue and have eFlow removed.

Parameters	Options	Description
Color Map (Dir.-eFlow)	A to O	Sets the following to be used at application startup: the color map to be applied to Directional eFlow.
Texture	Smooth, Sharp	Sets whether to display smooth eFlow images or sharp eFlow images.
Glossy Level	Off, 1 to 4	Sets the glossy level of the eFlow image.

(8) Biplane tab

Parameters	Options	Description
Gain (Color Flow) [T] (0 - 127)	0 to 127	Sets the following to be used at application startup: the Color Flow gain of 1-connector biplane transverse section.
Gain (Color Flow) [L] (0 - 127)	0 to 127	Sets the following to be used at application startup: the Color Flow gain of 1-connector biplane longitudinal section.
Gain (Power Doppler) [T] (0 - 127)	0 to 127	Sets the following to be used at application startup: the Power Doppler gain of 1-connector biplane transverse section.
Gain (Power Doppler) [L] (0 - 127)	0 to 127	Sets the following to be used at application startup: the Power Doppler gain of 1-connector biplane longitudinal section.
Gain (eFlow) [T] (0 - 127)	0 to 127	Sets the following to be used at application startup: the lateral plane eFlow gain in 1-connector-type biplane.
Gain (eFlow) [L] (0 - 127)	0 to 127	Sets the following to be used at application startup: the longitudinal plane eFlow gain in 1-connector-type biplane.
Ref. Frequency (Color Flow) [T]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the lateral plane CF mode reference frequency (transmission frequency) in 1-connector-type biplane.
Ref. Frequency (Color Flow) [L]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the longitudinal plane CF mode reference frequency (transmission frequency) in 1-connector-type biplane.
Ref. Frequency (Power Doppler) [T]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the lateral plane PD mode reference frequency (transmission frequency) in 1-connector-type biplane.
Ref. Frequency (Power Doppler) [L]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the longitudinal plane PD mode reference frequency (transmission frequency) in 1-connector-type biplane.
Ref. Frequency (eFlow) [T]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the lateral plane eFlow mode reference frequency (transmission frequency) in 1-connector-type biplane.
Ref. Frequency (eFlow) [L]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the longitudinal plane eFlow mode reference frequency (transmission frequency) in 1-connector-type biplane.

(9) DFI1 tab

Parameters	Options	Description
Ref. Frequency (DFI)	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the reference frequency (transmission frequency) for DFI mode.
Gain (DFI (0 - 127))	0 to 127	Sets the following to be used at application startup: the DFI gain.
Line Density (DFI)	1 to 8	Sets the following to be used at application startup: the line density (DFI) for DFI mode images. Line density increases when the level goes up, and decreases when the level goes down.
Line Density [Hi Zoom] (DFI)	1 to 8	Sets the line density (DFI) to apply when Hi Zoom (DFI mode) starts.
Persistence Level	0 to 7	Sets the following to be used at application startup: the level of correlation processing (Persistence) to apply between image frames. When [0], no correlation processing is performed.
Packet Size	Large	Displays high-definition DFI images. With this setting, the frame rate is lower than that for Middle.
	Middle	Sets a medium packet size (between Large and Small).
	Small	Displays low-definition DFI images. With this setting, the frame rate is higher than that for Middle.
Wall Motion Reduction	Off Low Middle High	Sets the level for removing clutter signal (wall motion noise).

(10) DFI2 tab

Parameters	Options	Description
Smoothing	0 to 4	Sets the smoothness level for displaying the DFI image.
Dynamic Range	1 to 16	Sets the following to be used at application startup: the Dynamic Range (DFI).
Color Map (DFI)	A to O	Sets the following to be used at application startup: the color map to be applied to DFI mode.
Color Map (Dir. DFI)	A to O	Sets the following to be used at application startup: the color map to be applied to Directional DFI mode.
Display Priority: BW Threshold	0 to 16	Sets the monochrome brightness threshold value for parts of the B mode image that are deemed to be tissue and have the DFI image removed.
Display Priority: BW Coefficient	1 to 10	Sets the monochrome brightness correction coefficient for parts of the B mode image that are deemed to be tissue and for which the DFI image is to be removed.
Texture	Smooth, Sharp	Sets whether to display smooth DFI images or sharp DFI images.
Glossy Level	Off, 1 to 4	Sets the glossy level of the DFI image.

Parameters	Options	Description
DFI Sensitivity	0 to 3	Sets the blood flow depiction sensitivity of a DFI image.

10.4.6 QSS parameter: Doppler

(1) Common tab

Parameters	Options	Description
Color Map	A to O	Sets the following to be used at application startup: the color map to be applied to D mode.

(2) PW1 tab

Parameters	Options	Description
Ref. Frequency (PW)	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the reference frequency (transmission frequency) for PW mode.
Gain (PW) (0 - 60)	0 to 60	Sets the following to be used at application startup: the D gain.
Velocity Range (PW)	1.26 to 802.08	Sets the following to be used at application startup: the velocity range for PW mode. NOTE: The velocity range varies depending on the probe.
Wall Filter (D)	1 to 12	Sets the level for removing unnecessary signals caused by wall movement in order to show just the blood flow signal. Raising the level increases the frequencies to be removed.
Spectrum Resolution (D)	Low Middle High	Sets data number to use for frequency analysis during PW wave display.
Dop. Gamma	1 to 8	Sets the following to be used at application startup: the Doppler waveform contrast and the level of gamma adjustment.
Low Echo Reduction (PW)	0 to 30	Sets the following to be used at application startup: the suppression level for hypoechoic areas of PW Doppler waveform. When [0], no suppression of hypoechoic areas is applied.
Grayscale Enh. (PW)	Off Low Mid High	Sets the balance between low brightness and high brightness in the gray scale of a PW Doppler waveform when an application is started.

(3) PW 2 tab

Parameters	Options	Description
Sample Volume (PW1)	0.5 to 20.0	Sets the following to be used at application startup: the sample volume width (mm) for the D cursor or D1 cursor.
Sample Volume (PW2)	0.5 to 20.0	Sets the following to be used at application startup: the sample volume width (mm) for the D2 cursor.

Parameters	Options	Description
Baseline Shift (PW)	-16 to 16	Sets the following to be used at application startup: the Doppler baseline position. Shifts up and down, relative to [0] as the image center position.
Baseline Shift (PW1)	-16 to 16	Sets the following to be used at application startup: the Doppler (PW1) baseline (0mm/s) position.
Baseline Shift (PW2)	-16 to 16	Sets the following to be used at application startup: the Doppler (PW2) baseline (0mm/s) position.

(4) Post Process tab

Parameters	Options	Description
Gamma Type (PW)	Window Type, S-Curve Type, Parabolic Type, Linear Type	Sets the following to be used at application startup: the γ type.
Gamma (PW) (-4.0 - 4.0)	-4.0 to 4.0	Sets the following to be used at application startup: the gamma value, in 0.1 increments.
Rejection (PW) (0 - 255)	0 to 255	Configures the location of the rise of the curve.
Center (PW) (0 - 255)	0 to 255	Sets the location of the center for S-shaped curves.
Saturation (PW) (0 - 255)	0 to 255	Configures the saturation location of curves.
Gamma Type (CW)	Window Type, S-Curve Type, Parabolic Type, Linear Type	Sets the following to be used at application startup: the γ type.
Gamma (CW) (-4.0 - 4.0)	-4.0 to 4.0	Sets the following to be used at application startup: the gamma value, in 0.1 increments.
Rejection (CW) (0 - 255)	0 to 255	Configures the location of the rise of the curve.
Center (CW) (0 - 255)	0 to 255	Sets the location of the center for S-shaped curves.
Saturation (CW) (0 - 255)	0 to 255	Configures the saturation location of curves.

(5) CW tab

Parameters	Options	Description
Gain (CW) (0 - 60)	0 to 60	Sets the following to be used at application startup: the D gain.
Velocity Range (CW)	25.07 to 802.08	Sets the following to be used at application startup: the velocity range for CW mode (vertical axis direction, cm/s). NOTE: The velocity range varies depending on the probe.

Parameters	Options	Description
Wall Filter (D)	1 to 12	Sets the level for removing unnecessary signals caused by wall movement in order to show just the blood flow signal. Raising the level increases the frequencies to be removed.
Spectrum Resolution (D)	Low Middle High	Sets the amount of data for use in frequency analysis during CW waveform display.
Dop. Gamma	1 to 8	Sets the following to be used at application startup: the Doppler waveform contrast and the level of gamma adjustment. Raising the level increases the frequencies to be removed.
Low Echo Reduction (CW)	0 to 30	Sets the following to be used at application startup: the suppression level for hypoechoic areas of CW Doppler waveform. When [0], no suppression of hypoechoic areas is applied.
Baseline Shift (CW)	-16 to 16	Sets the following to be used at application startup: the Doppler baseline position.
Echo Enh. (CW)	Off Low High	Sets whether to apply contrast between the Doppler waveform and background noise by enhancing the Doppler waveform and reducing background noise. The contrast is greater at [High] than at [Low].
Grayscale Enh. (CW)	Off Low Mid High	Sets the balance between low brightness and high brightness in the gray scale of a CW Doppler waveform when an application is started.

(6) Biplane tab

Parameters	Options	Description
Ref. Frequency (PW) [L]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the longitudinal plane PW mode reference frequency (transmission frequency) in 1-connector-type biplane.
Ref. Frequency (PW) [T]	3 (High) 2 (Middle) 1 (Low)	Sets the following to be used at application startup: the lateral plane PW mode reference frequency (transmission frequency) in 1-connector-type biplane.
Gain (PW) [L] (0 - 60)	0 to 60	Sets the following to be used at application startup: the longitudinal plane D gain in 1-connector-type biplane.
Gain (PW) [T] (0 - 60)	0 to 60	Sets the following to be used at application startup: the lateral plane D gain in 1-connector-type biplane.

10.4.7 QSS parameter: Tissue Dop.

(1) PW1 tab

Parameters	Options	Description
Gain (TD-PW) (0 - 60)	0 to 60	Sets the following to be used at application startup: the D gain (TD-PW).

Parameters	Options	Description
Velocity Range (TD-PW)	1.26 to 802.08	Sets the following to be used at application startup: the velocity range for TD-PW mode. NOTE: The velocity range varies depending on the probe.
Wall Filter (TD-PW)	1 to 12	Sets the level for removing unnecessary signals caused by wall movement in order to show just the blood flow signal. Raising the level increases the frequencies to be removed.
Spectrum Resolution (TD-PW)	Low Middle High	Sets data number to use for frequency analysis during PW wave display.
Dop. Gamma	1 to 8	Sets the following to be used at application startup: the Doppler waveform contrast and the level of gamma adjustment. Raising the level increases the frequencies to be removed.
Low Echo Reduction (TD-PW)	0 to 30	Sets the following to be used at application startup: the suppression level for hypoechoic areas of TD-PW Doppler waveform. When [0], no suppression of hypoechoic areas is applied.
Sample Volume (TD-PW1)	0.5 to 20.0	Sets the following to be used at application startup: the sample volume width (mm) for the D cursor or D1 cursor.
Sample Volume (TD-PW2)	0.5 to 20.0	Sets the following to be used at application startup: the sample volume width (mm) for the D2 cursor.
Baseline Shift (TD-PW)	-16 to 16	Sets the following to be used at application startup: the baseline position in TD-PW mode.
Baseline Shift (TD-PW1)	-16 to 16	Sets the following to be used at application startup: the Doppler (TD-PW1) baseline position.
Baseline Shift (TD-PW2)	-16 to 16	Sets the following to be used at application startup: the Doppler (TD-PW2) baseline position.

(2) PW2 tab

Parameters	Options	Description
Grayscale Enh. (TD-PW)	Off Low Mid High	Sets the balance between low brightness and high brightness in the gray scale of a TD-PW Doppler waveform when an application is started.

(3) Post Process tab

Parameters	Options	Description
Gamma Type (TD-PW)	Window Type, S-Curve Type, Parabolic Type, Linear Type	Sets the following to be used at application startup: the γ type.
Gamma (TD-PW) (-4.0 - 4.0)	-4.0 to 4.0	Sets the following to be used at application startup: the gamma value, in 0.1 increments.

Parameters	Options	Description
Rejection (TD-PW) (0 - 255)	0 to 255	Configures the location of the rise of the curve.
Center (TD-PW) (0 - 255)	0 to 255	Sets the location of the center for S-shaped curves.
Saturation (TD-PW) (0 - 255)	0 to 255	Configures the saturation location of curves.

(4) Area tab

Parameters	Options	Description
Area Width (TDI) (5 - 100)	5 to 100	Sets the following to be used at application startup: the flow area width, in 5% increments.
Area Width (B +TDI/*) (5 - 100)	5 to 100	Sets the flow area width in 5% increments when using B (TDI)/*mode.
Area Height (TDI) (25 - 100)	25 to 100	Sets the following to be used at application startup: the flow area height, in 5% increments.
Area Depth (TDI)	1 (Shallow) 2 (Center) 3 (Deep)	Sets the following to be used at application startup: the flow area depth, in 5% increments.

(5) Color tab

Parameters	Options	Description
Gain (TDI [B]) (0 - 127)	0 to 127	Sets the following to be used at application startup: the CF gain (TDI).
Line Density (TDI [B])	1 to 8	Sets the following to be used at application startup: the line density (TDI [B]) for TDI [B]. Line density increases when the level goes up, and decreases when the level goes down.
Line Density [HI Zoom] (TDI [B])	1 to 8	Sets the line density (TDI [B]) to apply when Hi Zoom (TDI mode) starts.
Line Density (TDI[B] (BW))	1 to 8	Sets the scanning line density (B) in TDI mode.
Line Density [HI Zoom] (TDI[B] (BW))	1 to 8	Sets the line density (B) to apply when Hi Zoom (TDI mode) starts.
Velocity Range (TDI)	0.63 to 458.33	Sets the following to be used at application startup: the velocity range for TDI mode. NOTE: The velocity range varies depending on the probe.
Persistence Level	0 to 7	Sets the following to be used at application startup: the level of correlation processing (Persistence) to apply between image frames. When [0], no correlation processing is performed.

Parameters	Options	Description
Packet Size	Large	Displays high-definition TDI images. With this setting, the frame rate is lower than that for Middle.
	Middle	Sets a medium packet size (between Large and Small).
	Small	Displays low-definition TDI images. With this setting, the frame rate is higher than that for Middle.
Smoothing	0 to 4	Sets the smoothness level for displaying the TDI image.
Blend [%] (0 - 100)	0 to 100	Sets the color transparency ratio. When displaying the movement speeds of tissues in color, the higher the transparency ratio, the more transparent the color is, and the background B mode image becomes easier to see.
Color Map	A to O	Sets the following to be used at application startup: the color map to be applied to TDI mode.

10.4.8 QSS parameter: Physiology

(1) ECG tab

Parameters	Options	Description
ECG Display (B)	On, Off	Sets the following to be used at application startup: the ECG Display on B mode.
ECG Display (Sweep)	On, Off	Sets the following to be used at application startup: the ECG Display on M mode and/or D mode.
ECG Position (1 - 32)	1 to 32	Sets the following to be used at application startup: the ECG position.
ECG Sensitivity (0 - 30)	0 to 30	Sets the following to be used at application startup: the ECG sensitivity. The display amplitude of the ECG is increased according to the numerical value. At level [0], the ECG is displayed as a flat line.
ECG Auto Sensitivity	Off, S, M, L	Sets the level for automatic compensation of ECG sensitivity. Sensitivity is raised in order of [S], [M], and [L].

(2) PCG tab

Parameters	Options	Description
PCG Display (B)	On, Off	Sets the following to be used at application startup: the PCG Display on B mode.
PCG Display (Sweep)	On, Off	Sets the following to be used at application startup: the PCG Display on M mode and/or D mode.
PCG Position (1 - 32)	1 to 32	Sets the following to be used at application startup: the PCG position.

Parameters	Options	Description
PCG Sensitivity (0 - 30)	0 to 30	Sets the following to be used at application startup: the PCG sensitivity. The display amplitude of the PCG is increased according to the numerical value. At level [0], the PCG is displayed as a flat line.

(3) Resp. tab

Parameters	Options	Description
Resp Display (B)	On, Off	Sets the following to be used at application startup: the Resp Display on B mode.
Resp Display (Sweep)	On, Off	Sets the following to be used at application startup: the Resp Display on M mode and/or D mode.
Resp Position (1 - 32)	1 to 32	Sets the following to be used at application startup: the Resp position.
Resp Sensitivity (0 - 30)	0 to 30	Sets the following to be used at application startup: the Resp sensitivity. The display amplitude of the breathing is increased according to the numerical value. At level [0], the exhalation is displayed as a flat line.

(4) AUX tab

Parameters	Options	Description
Pulse Display (B)	On, Off	Sets the following to be used at application startup: the Pulse display on B mode.
Pulse Display (Sweep)	On, Off	Sets the following to be used at application startup: the Pulse display on M mode and/or D mode.
Pulse Position (1 - 32)	1 to 32	Sets the following to be used at application startup: the Pulse display position.
Pulse Sensitivity (0 - 30)	0 to 30	Sets the following to be used at application startup: the Pulse sensitivity. The display amplitude of the pulse is increased according to the numerical value. At level [0], the pulse wave is displayed as a flat line.

10.5 Settings for each diagnostic region

Procedure

1. Press the [Probe/Preset] key.
2. Select [Preset Setup] on the touch panel.
3. Select [Region].

You can now perform the following operations:

- Edit parameters for the diagnostic field.

- Copy and paste the diagnostic field.
- Change the name of the diagnostic field.
- Initialize the diagnostic field (reset to the factory default settings).

10.5.1 Copying diagnostic field settings

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Region].
3. From the Region column, select the diagnostic field to copy.
4. Select [Copy].
5. From [User1] to [User9] in the Region column, select the copy-destination diagnostic field.
6. Select [Paste].
7. Select [OK] on the message.
 - The selected diagnostic field is overwritten.

10.5.2 Changing diagnostic field settings

Changes the name of user settings.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Region].
3. From [User1] to [User9] in the Region column, select the desired diagnostic field.
NOTE: The names of factory default diagnostic fields cannot be changed.
4. Enter a name.
 - a. Select [Edit Name] and enter a name.
 - b. Select [Enter] on the keyboard.

10.5.3 Initializing diagnostic field settings

This resets diagnosis field settings to their factory default settings.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Region].
3. From the Region column, select the desired diagnostic field.
4. Select [Factory Data].
5. Select [OK] on the message.

- This resets it to the factory default settings. For user-defined color maps, this returns the color map of the copy source to its factory default settings. However, the name does not change.

10.5.4 Editing the parameters of diagnostic field settings

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Region].
3. From the Region column, select the desired diagnostic field.
4. From the Menu column, select the desired category.

Menu Categories

Item	Description	Reference
General	Configures parameters not classified below.	
B	B mode-related settings	
Doppler	D mode-related settings	
Color	CF mode-related settings	
Tissue Dop.	TDI mode-related settings	
Body Mark	Body mark menu settings	
Annotation	Annotation-related settings	
Physiology	Settings related to physiological signals	
PinP	Settings related to PinP.	
RVS	Settings related to RVS	Separate manual "Advanced Operations 2"

5. Select a tab.
6. Edit the parameters.
To return parameters on the displayed tab to their factory default settings:
Select [Initialize]. This only returns the parameters on the displayed tab to their factory default settings.
7. Select [Save] to save settings.
8. Select [Close] to return to the scanning screen.
If the following message is displayed: "Save changes to preset data?"
Select [Yes] to save changes.
Select [No] to close the preset screen without saving changes.

10.5.5 Parameters of diagnostic field settings: General

(1) Operation1 tab

Parameters	Options	Description
Trackball Priority When Frozen (Color On)	Search Body Mark Comment Measurement + Search	Sets the state of trackball function when the [Freeze] key is set to On in CF mode, PD mode, TDI mode, eFlow mode, DFI mode, Elastography, and CHI-Color.
Trackball Priority When Frozen (Color Off)	Search Body Mark Comment Measurement + Search	Sets the trackball function when the [Freeze] key is set to On.
Trackball Priority When Freeze OFF	Auto	If the trackball function is set to Body Mark directly prior to Freeze being turned Off, the trackball function is set to Body Mark when Freeze is turned to Off. In all other situations, the trackball function setting is the same as "Unchanged" when Freeze is turned to Off.
	Unchanged	Immediately inherits trackball function status when Freeze is turned On after being turned Off.
Trackball Priority When Frozen (Color Off)(CHI)	Search Body Mark Comment Measurement +Search	Sets the trackball function when the [Freeze] key is set to On in CHI-B/W.
Trackball Priority (Focus/B.M.)	Focus Body Mark Off	Allows the trackball to be used to adjust the focus position or body marks.
Freeze Encoder on Frozen	Cine Search B Gain Low Echo Reduction	Sets the function of the [Freeze] rotary encoder when the [Freeze] key is set to On.
Velocity/Focus Paddle Switch	Velocity Focus Dependent Mode	Sets the following to be used at application startup: the [FOCUS/VELOCITY] paddle switch function.
Pointer R.E. (Color/D)	Scan Width Vel. Range	Sets the function of [Pointer] rotary encoder when in color Doppler mode or D mode.

Parameters	Options	Description
Sweep mode Auto Active	Off	Turns off active switching of the tomographic image and sweep mode in response to cursor movement by the trackball in B/M and B/D modes.
	B Active by Cursor movement	This setting makes the tomographic image active when the cursor is moved using the trackball in B/M or B/D mode with sweep mode active.
	B/Sweep Active by Cursor movement	This setting makes the tomographic image active when the cursor is moved using the trackball in B/M or B/D mode with sweep mode active. When the tomographic image is active, this setting makes sweep mode active when the trackball is stopped with the cursor at the position of the sweep mode image.

(2) Operation2 tab

Sound Select

Parameters	Options	Description
Sound Select (Panel Switch)	Off A, B, C	Sets the sounds when operating keys on the operation panel.
Sound Select (Touch Panel Menu)	Off A, B, C	Sets the sound of operations on the touch panel.
Sound Select (Archive Switch)	Off A, B, C	Sets the sound from pressing the key that assigns Archives 1 through 5 from among the operation panel keys.
Sound of Store	On, Off	Sets the sound to go off when a still image or video is saved.

Parameters	Options	Description
Message Alarm	On, Off	Sets the sound when messages are displayed.
Monitor/Panel Setting	Type A Type B Type C	Sets the following to be used at application startup: the Monitor/Panel Setup.

(3) Display tab

Parameters	Options	Description
ID Input Type	CARD OB GYN ABD VAS SMP URO	Sets the type of ID input screen to be displayed when the [New Patient] key is pressed.
Menu Skin Select	A, B, C, D	Sets the design of the touch panel menu.

Parameters	Options	Description
Pointer Home Position	Review Area	Configures the display of the pointer in the thumbnail area when the [Pointer] key is pressed.
	Comment Area	Configures the display of the pointer in the comment area when the [Pointer] key is pressed.
	Previous Position	Displays the pointer in the following way when the [Pointer] key is pressed: At initial start of pointer display, the pointer is displayed in the comment area. If pointer display is ended and restarted, the pointer is displayed in the area in which pointer display last ended.
TI Display (***)	TIS, TIB, TIC	Configures the thermal index display items. NOTE: The parameter complies with the standard shown in [***].
B/D Format	L/R	Configures the display to left/right when in B/D mode.
	U/D	Configures the display to up/down when in B/D mode.
B/M Format	L/R	Configures the display to left/right when in B/M mode.
	U/D	Configures the display to up/down when in B/M mode.
B/D Format Size (U/D)	Normal Wide	Sets the B mode and D mode image split size when B/D Format is set to [U/D]. Normal is B: D = 1:1, Wide is B: D = 1:2.
B/M Format Size (U/D)	Normal Wide	Sets the B mode and M mode image split size when B/M Format is set to [U/D]. Normal is B: M = 1:1, Wide is B: M = 1:2.
Font Size (Meas. Results)	x1, x1.2, x1.4	Configures the character size of the measurement result display.
Velocity Unit	cm/s, m/s kHz	Sets the following to be used at application startup: the velocity range display unit.
Joining display of 2B	On, Off	Displays two linked images in the dual-screen view when the left and right display conditions match. NOTE: Only a linear probe is supported. NOTE: Two linked screens cannot be displayed when using Trapezoid, Vertical Shift, CHI, or Zoom.
Cut-off freq. of Wall Filter	On, Off	Sets PW waveform and CW waveform cutoff frequency display.

(4) Cine tab

Parameters	Options	Description
Cine Memory Division	Off 2, 4	Sets the following to be used at application startup: the Cine Memory Division count.
Keep Display after 2B mapping	On, Off	If you freeze an image in single screen display, and then switch to dual screen display and unfreeze the image, dual screen display is maintained. NOTE: This parameter is enabled when Cine Memory Division is [Off].

(5) Filing tab

Parameters	Options	Description
Filing	Abdomen, Obstetric, Gynecology, Cardiology, Vascular, Small Parts, Urology, CHI, User 1 to User 9	Sets the Filing presets associated with applications.

10.5.6 Parameters of diagnostic field settings: B

(1) B tab

Parameters	Options	Description
Initial Mode	B Dual Quad	Sets the following to be used at application startup: the B mode display screen.
B Format Size (H)	Normal Small	Sets the height and width of the B mode and M mode image display area in B, B/B, B/M, and B/D modes.
Rotary Plane Mark Display	On, Off	Sets the following to be used at application startup: the Rotary Plane mark display (only for compatible probes).
Rotary Plane Angle Display	On, Off	Sets the following to be used at application startup: the Rotary Plane angle display (only for compatible probes).
Invert L/R	On, Off	Sets the following to be used at application startup: the L/R Invert on B mode images.
Invert U/L	On, Off	Sets the following to be used at application startup: the U/L Invert on B mode images.
TGC	Fixed	Adjusts and configures the display depth to always be at a set ratio. Changes the adjustable range of TGC equally for an image display range.
	Variable	Sets the following to be used at application startup: the depth for dividing the screen display into equal parts during TGC.
TGC Curve	Normal Custom	Sets whether to apply the curve memorized in TGC at application startup.
Image Rotation [deg]	0 90 180 270	Sets the following to be used at application startup: the orientation (clockwise rotation angle) for B mode images.
Omni Plane Angle Setting [deg]	-45 to 45	Sets the Omni Plane angle to be used when the application starts (only for probes compatible with Omni Plane).

Parameters	Options	Description
Omni Plane Mark Display	On, Off	Sets the Omni Plane mark display to be used when the application starts (only for probes compatible with Omni Plane).
Omni Plane Angle Display	On, Off	Sets the Omni Plane angle display to be used when the application starts (only for probes compatible with Omni Plane).

(2) Biplane tab

Parameters	Options	Description
Initial Plane	T L Previous exam	Displays biplane probe cross section images when the application starts. If [Previous exam] is selected, this displays the cross section images that were displayed at the end of the previous examination. NOTE: For CC41R, this displays cross section images even if the setting is [Previous exam].
Invert L/R [L]	On, Off	Sets the following to be used at application startup: the longitudinal plane B mode image L/R invert in 1-connector-type biplane.
Invert L/R [T]	On, Off	Sets the following to be used at application startup: the lateral plane B mode image L/R invert in 1-connector-type biplane.
Invert U/L [L]	On, Off	Sets the following to be used at application startup: the longitudinal plane B mode image U/L invert in 1-connector-type biplane
Invert U/L [T]	On, Off	Sets the following to be used at application startup: the lateral plane B mode image U/L invert in 1-connector-type biplane.
Image Rotation [L] [deg]	0 90 180 270	Sets the following to be used at application startup: the longitudinal plane B mode image rotation in 1-connector-type biplane.
Image Rotation [T] [deg]	0 90 180 270	Sets the following to be used at application startup: the lateral plane B mode image rotation in 1-connector-type biplane.

(3) Radial Tab

Sets how radial probes are displayed by default at application startup.

PROX. displays images viewed from the probe insertion direction, and DISTAL displays images viewed from the opposite of the probe insertion direction.

Options	Description
PROX. 	Sets the display direction (PROX. or DISTAL) and the display angle (0°, 90°, 180°, 270°) for B mode images.
DISTAL 	

10.5.7 Parameters of diagnostic field settings: Doppler

(1) Common tab

Parameters	Options	Description
Simultaneous (PW)	On, Off	Sets the following to be used at application startup: the B/D simultaneous display screen.
Direct to D Sweep	B+Cursor B/PW	Sets the screen on which the cursor is displayed when in B/D mode. If you select [B+Cursor], a cursor is displayed on the B mode image (single-screen view). The [B/PW] cursor is displayed on the B mode image in B/D mode.
Spectrum Format Size	Normal Wide	Sets the following to be used at application startup: the D mode image display area height for B/D mode.
Invert Axis (D)	Base Line Center	Sets the following to be used at application startup: the spectrum inversion standard.
Invert Link	On, Off	Configures the color polarity during spectrum inversion.
B Shift	On, Off	Sets the B mode image to follow the cursor movement in the B/D mode.
Spectrum Texture	Smooth Sharp	Sets the sensitivity of the Doppler waveform.
Simultaneous Smoothing	On, Off	Sets to display a smoother PW waveform when under simultaneous operation.

(2) Angle Bar tab

Parameters	Options	Description
Angle Correction Type	Keep an angle on screen Keep an angle with Doppler cursor	Configures the operation of the Angle Correction bar when the D cursor is moved. [Keep an angle on screen] keeps the angle on the screen. [Keep an angle with Doppler cursor] keeps the angle with the D cursor.
Automatic Reverse	On, Off	Configures the Angle Correction bar to invert at the same time as the D cursor steer angle inverts.

10.5.8 Parameters of diagnostic field settings: Color

(1) Common tab

Parameters	Options	Description
Velocity Unit (PD)	On, Off	Sets the unit of velocity range (cm/s for eFlow mode and kHz for PD mode) when eFlow mode, PD mode, or DFI mode starts.
Invert Color Map	On, Off	Sets the following to be used at application startup: the color polarity inversion.
Line Density Offset (Triplex)	-7 to 0	Configures the line density offset when Triplex is running

10.5.9 Parameters of diagnostic field settings: Tissue Dop.

(1) Common tab

Parameters	Options	Description
Invert Axis (TD-PW)	Base Line Center	Sets the following to be used at application startup: the spectrum inversion standard.
Invert Color Map	On, Off	Sets the following to be used at application startup: the color polarity inversion.
Spectrum Texture	Smooth Sharp	Sets the sensitivity of the Doppler waveform.

10.5.10 Parameters of diagnostic field settings: Body Mark

(1) US tab

Parameters	Options	Description
Body Mark Display	On, Off	Sets the following to be used at application startup: the Body Mark display.
Body Mark Display (CHI)	On, Off	Sets the Body Mark display on CHI startup.
Body Mark Copy	On, Off	Setting of whether to inherit the body marks in the active screen when the active screen is switched in the dual-screen view or quad-screen view.
Probe Mark Copy	On, Off	Sets whether to inherit the types, positions, and angles of the probe marks in the active screen, when the active screen is switched in the dual-screen view or quad-screen view.

(2) RVS tab

Parameters	Options	Description
Body Mark Display	On, Off	Sets the display of body marks on US images.

Parameters	Options	Description
3D Body Mark Display	On, Off	Sets the display of body marks on virtual images.
3D Body Mark Size	Small, Middle, Large	Sets the size of the 3D body mark.

10.5.11 Parameters of diagnostic field settings: Annotation

(1) Common tab

Parameters	Options	Description
Dictionary	Dic 1 to Dic 28	Configures the user dictionary to display during comment input.
Comment Menu	Annotation Annotation + Keyboard Virtual Keyboard	Configures the menu to be displayed on the touch panel during comment input.
Character Size	Small Middle Large	Configures the size of comment text.
Annotation Dictionary Select	Full Spelling Abbreviation	Sets the mode in which the word selected from the Annotation menu is to be displayed. If [Full Spelling] is selected, the selected word is displayed in full. If [Abbreviation] is selected, an abbreviation of the selected word is displayed.
Comment Auto Delete	Erase Remain	Sets whether to erase/show comments when freezing is canceled. [Erase] erases the comments after freezing is canceled. [Remain] displays the comments even after freezing is canceled.
Comment Cursor Position	Home Position Previous Position	Sets the cursor display position if the Pointer Home Position of the preset ([Preset Setup] > [Region] > [General] > [Display]) is [Comment Area].
Replace Mode	On, Off	Sets the use of the replacement mode when entering comments.
Search Words	On, Off	Sets whether the registered words are searched during keyboard entry.

10.5.12 Parameters of diagnostic field settings: Physiology

(1) Common tab

Parameters	Options	Description
ECG Filter	On, Off	Sets the following to be used at application startup: the ECG Filter.
Invert ECG Display	On, Off	Sets the following to be used at application startup: U/L Invert of the ECG waveform.

Parameters	Options	Description
R-Wave Beep	On, Off	Sets the R-wave detection sound.
Resp Scroll Display (Freeze)	On, Off	Sets the Resp Display during freeze to scroll (waveform) when Resp Display Method is [Bar].
Resp Display Method	Scroll, Bar	Sets the following to be used at application startup: the Resp display method.
PCG Filter	L, M, H	Sets the following to be used at application startup: the PCG filter.
R-Delay Time [s]	0.00 to 2.55	Sets the time phase to time (0.01 second steps) from the R wave.

(2) H.R.Stability tab

Parameters	Options	Description
RRp/RRpp (0.05 - 0.50)	0.05 to 0.50	Configures the allowable variation range between the latest and previous R-wave intervals in steps of 0.05. NOTE: If RRp/RRpp is within the allowable variation range, that sector is judged to be a stable heartbeat sector.
H.R. Stability Display	On, Off	Sets the following to be used at application startup: the determination and display of a stable heartbeat.
H.R. Stability Display (Average) [%] (0 - 50)	0 to 50	Configures the allowable range (%) relative to the average heart rate over the latest four heartbeats.
H.R. Stability Display (Continuous) [%] (0 - 50)	0 to 50	Configures the allowable range (%) relative to the rate of change between two consecutive heartbeats.

10.5.13 Parameters of diagnostic field settings: PinP

(1) Common tab

Parameters	Options	Description
Initial Display Size	Small Half Full	Sets the size at which the PinP window is to be displayed when the application starts.
Initial Display Location	Upper Left Lower Left Upper Right Lower Right	Sets the position in which the PinP window is to be displayed when the application starts.

10.6 Filing

This configures parameter settings related to image output and playback.

10.6.1 Editing filing parameters

This configures the parameters in regard to image output and play in filing. This preset is set in every diagnosis field.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Filing].
3. Select the desired diagnostic field.
4. Edit the parameters.
5. Select [Save] to save settings.
6. Select [Close] to return to the scanning screen.

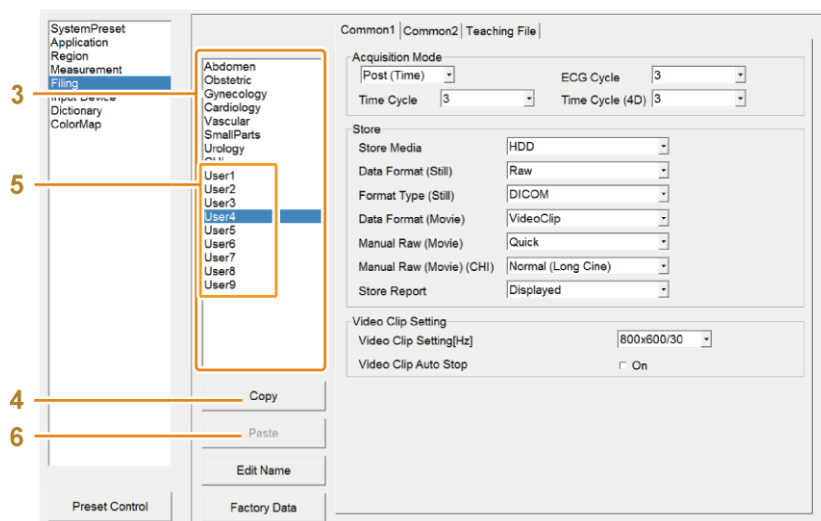
If the following message is displayed: "Save changes to preset data?"

Select [Yes] to save changes.

Select [No] to close the preset screen without saving changes.

10.6.2 Filing batch copying and pasting

The parameters for a Filing can be copied and then pasted into a user definition.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Filing].
3. Select the diagnostic field to copy from the list.
4. Select [Copy].
5. Select the diagnostic field from [User1] to [User9] in the list.
6. Select [Paste].
7. Select [OK] on the message.

→ The selected diagnostic field is overwritten.

10.6.3 Initializing filings

This resets color maps back to their factory default settings.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Filing] and then select the desired diagnostic field from the list.
3. Select [Factory Data].
4. Select [OK] on the message.
 - This resets it to the factory default settings. For user-defined color maps, this returns the color map of the copy source to its factory default settings. However, the name does not change.

10.6.4 Changing filing names

Changes the name of user settings.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Filing].
3. Select the desired diagnostic field from [User1] to [User9] in the list.
NOTE: The names of factory default diagnostic fields cannot be changed.
4. Enter a name.
 - a. Select [Edit Name].
 - b. Enter the name. Then press the [Enter] key.

10.6.5 Filing: Parameters

(1) Common1 tab

(a) Acquisition Mode

Parameters	Options	Description
Acquisition Mode	Pre (Time) Pre (ECG) Post (Time) Post (ECG) Manual	Sets the following to be used at application startup: the video acquisition method.
ECG Cycle	1 to 10	Configures the Cine playback range and video acquisition time after freezing according to the heart rate.
Time Cycle	1 to 16, 30, 45, 60, 75, 90	Configures the Cine playback range and video acquisition time (seconds) after freezing.

Parameters	Options	Description
Time Cycle(4D)	1 to 16, 30, 45, 60, 75, 90	Configures the Cine playback range and video acquisition time (seconds) after freezing in 4D mode.

(b) Store

Parameters	Options	Description
Store Media	HDD USB CD-R Buffer DVD NET (DICOM)	Configures where the acquired video or still image is to be stored.
Data Format (Still)	Raw RGB	Sets the following to be used at application startup: the data format of still images.
Format Type (Still)	DICOM JPEG BMP TIFF	Sets the storage format when saving still images to anything other than the system hard disk.
Data Format (Movie)	Raw Video Clip Raw&V.C.	Sets the following to be used at application startup: the data format of videos.
Manual Raw (Movie)	Normal (Long Cine) Quick	Sets the timing at which a video is saved if the Data Format (Movie) setting is Raw or Raw&V.C.
Manual Raw (Movie)(CHI)	Normal (Long Cine) Quick	Sets the timing at which a video is saved in CHI mode if the Data Format (Movie) setting is Raw or Raw&V.C.
Store Report	Displayed Auto page-turning All	Sets the save method used when any of the following is pressed while a report is displayed: • [Store] key • [Archive Group 1] key • [Archive Group 2] key • [Archive Group 3] key • [Archive Group 4] key • [Archive Group 5] key [Displayed] saves the displayed report screen. [Auto page-turning] saves the displayed report screen, and then displays the next page. [All] saves all report screens in a batch. After the screens are saved, the last report screen page is displayed.

(c) Video Clip Setting

Parameters	Options	Description
Video Clip Setting [Hz]	1024x768/30 800x600/60 800x600/30 640x480/60 640x480/30	Configures the playback speed and image size when saving video clips.
Video Clip Auto Stop	On, Off	Sets whether to freeze the scanning screen after a video clip is saved.

(2) Common2 tab

(a) Playback Mode

Parameters	Options	Description
Playback Mode	Short Long Align Free Run	Specifies how video playback is synchronized in the dual-screen view or quad-screen view.
Playback Speed Unit	Frame Rate Ratio	Sets the playback speed unit. [Ratio] means x1 of the frame rate during capture.
Loop Mode (Image Compare)	ECG Sync Free Run	Sets the synchronization method for images played in Image Compare mode.
Auto Playback	On, Off	Sets whether to automatically loop playback when acquiring a video. NOTE: This function is available if the Acquisition Mode setting is [PreECG].
Auto Freeze Off	On, Off	Sets whether to release the automatic freezing function after video images are saved while being continuously played back.
Loop Method	Frame, Beat	Sets how the playback range is to be changed.

(3) Teaching File tab

(a) Teaching File (Video)

Parameters	Options	Description
Teaching File (Video Clip)	On, Off	Configures the mask for patient data (patient ID and name) related to the output image when recording a video clip or to an external media.

Masking Item

Parameters	Options	Description
Hosp. & Sonographer Name	On, Off	Configures the mask for the hospital name and sonographer related to the output image when recording a video clip or to an external media.

Parameters	Options	Description
Age	On, Off	Configures the mask for patient age related to the output image when recording a video clip or to an external media.
Gender	On, Off	Configures the mask for patient sex related to the output image when recording a video clip or to an external media.

(b) Teaching File (Net)

Parameters	Options	Description
Teaching File (Net)	On, Off	Configures the mask for patient data (patient ID and name) related to the output image when sending images to the network.

Masking Item

Parameters	Options	Description
Hosp. & Sonographer Name	On, Off	Configures the mask for the hospital name and sonographer name related to the output image when sending images to the network.
Age	On, Off	Configures the mask for patient age for output images when sending images to the network.
Gender	On, Off	Configures the mask for patient gender for output images when sending images to the network.

10.7 Input devices

Input Devices are presets for assigning functions to switches and menus. The following input devices are available.

Item	Description
Direct SW	Assigns functions to direct switches on the touch panel. For details about assignable functions, see "Direct switches" in this manual.
Function SW	Assigns functions to the function menu on the touch panel. For details about assignable functions, see the items other than Find/Tile in "Function menus" in this manual.
Find/Tile View Menu	Assigns functions to Find/Tile View menus. For details about assignable functions, see "Function menus: Find/Tile" in this manual.
TDI Analysis Menu	Assigns functions to the function menu in TDI analysis. For details about assignable functions, see the separate manual "Advanced Operations 1".
CHI Analysis Menu	Assigns functions to the function menu in CHI analysis. For details about assignable functions, see the separate manual "Advanced Operations 2".
2DTT Analysis Menu	Assigns functions to the function menu in 2DTT analysis. For details about assignable functions, see the separate manual "Advanced Operations 1".

Item	Description
Custom SW	Assigns functions to keys on the control panel. For details about assignable functions, see "Direct switches" in this guide.
Custom-Foot SW	Assigns functions to foot switches
Custom-Keyboard SW	Assigns functions to the keys from F1 to F12 on the keyboard.
Measurement Menu	Assigns functions to the multi rotary encoder region in the measurement menu.
Protocol Start Menu	Assigns a protocol launch menu to the touch panel.

You can configure input devices to each application in order to link them to their applications.

Reference information

9.2 Direct switches on page 210

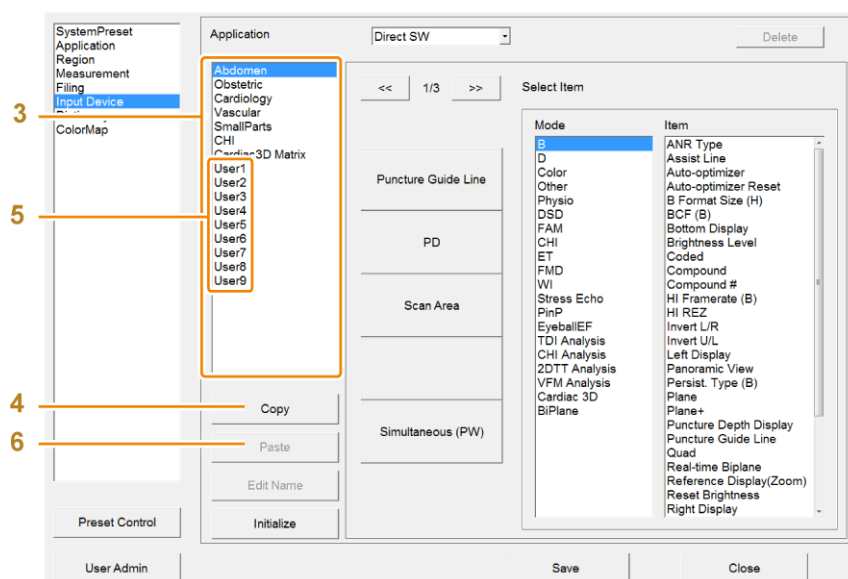
9.3 Function menus on page 218

10.7.1 Copying and pasting input devices

Copying input device parameters and pasting to make user definitions.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
 2. Select [Input Device].
 3. From the Application column, select the diagnostic field to copy.
 4. Select [Copy].
 5. Select the copy-destination diagnostic field from the options ([User1] to [User9]) in the Application column.
 6. Select [Paste].
 7. Select [OK] on the message.
- The selected diagnostic field is overwritten.

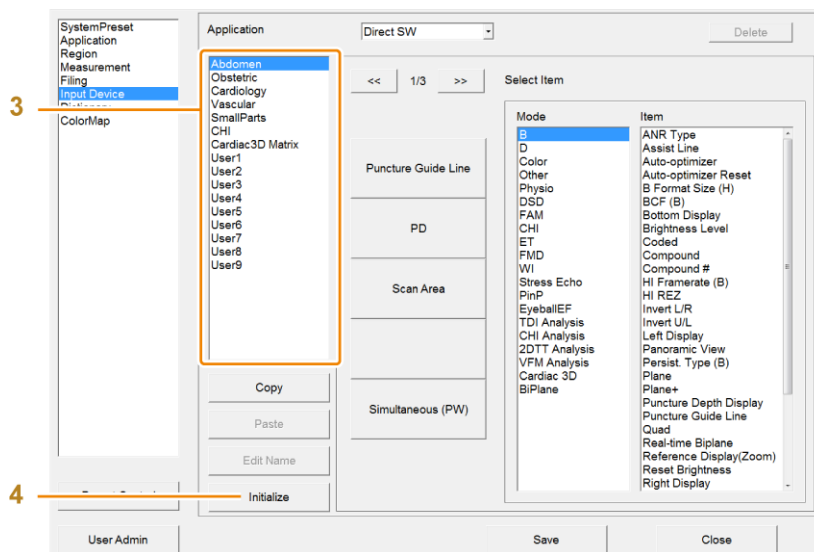


10.7.2 Initializing input devices

This resets input devices to their factory default settings.

Procedure

1. Press the [Probe/Presets] key, and then select [Preset Setup] on the touch panel.
 2. Select [Input Device].
 3. From the Application column, select the desired diagnostic field.
 4. Select [Initialize].
- This resets it to the factory default settings. For user-defined color maps, this returns the color map of the copy source to its factory default settings. However, the name does not change.



10.7.3 Changing preset names of input devices

Changes the name of user settings.

Procedure

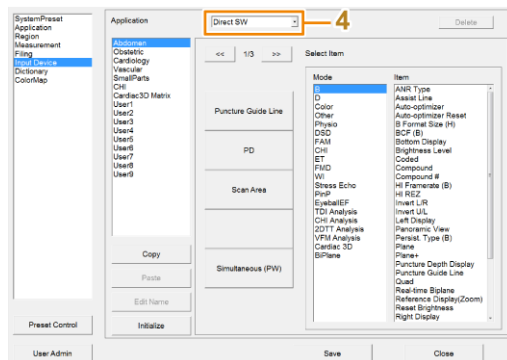
1. Press the [Probe/Presets] key, and then select [Preset Setup] on the touch panel.
2. Select [Input Device].
3. Select the desired diagnostic field from the options in the range from [User1] to [User9].
NOTE: The names of factory default diagnostic fields cannot be changed.
4. Enter a name.
 - a. Select [Edit Name].
 - b. Enter a name.
 - c. Press the [Enter] key.

10.7.4 Assigning functions

This configures the assignment of functions to switches and menus.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Input Device].
3. From the Application column, select the desired diagnostic field.
4. Select an input device.



5. Assign the functions.

The assignment method differs depending on the input device. For details, see the next page and later.

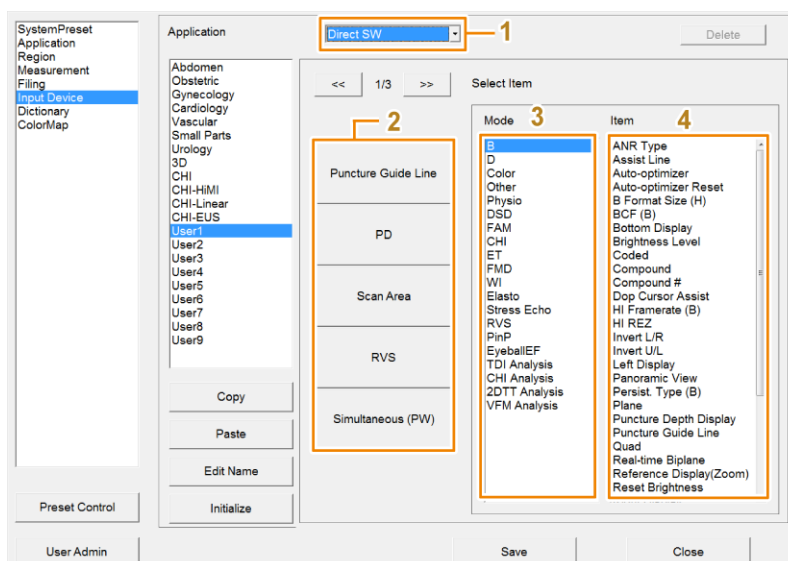
6. Select [Save] to save settings.
7. Select [Close] to return to the scanning screen.

If the following message is displayed: "Save changes to preset data?"

Select [Yes] to save changes.

Select [No] to close the preset screen without saving changes.

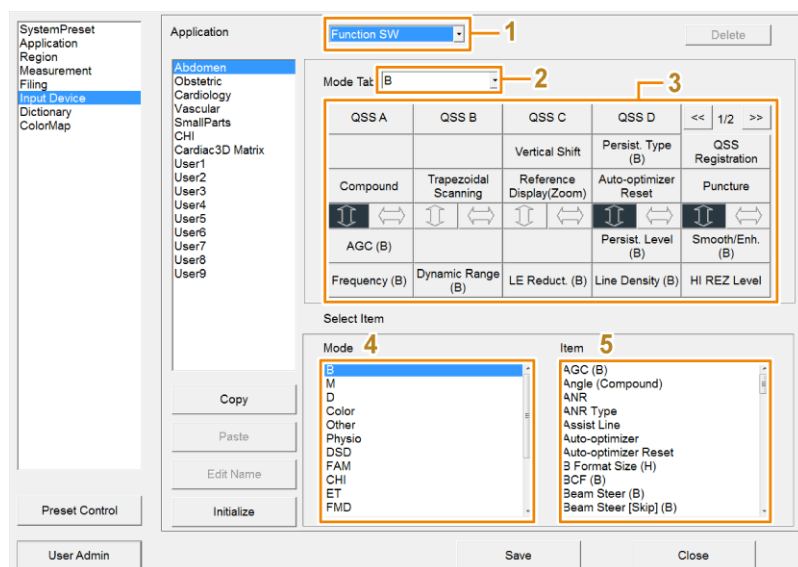
(1) Assigning to direct switches



Procedure

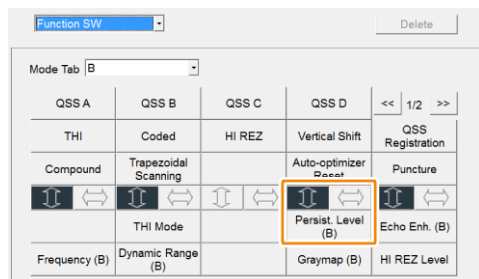
1. Select [Direct SW] from the Input Device list.
2. Select the location you'd like to assign.
There are three pages of direct switches you can assign. Select [<<] or [>>] to switch pages.
3. From the Mode column, select the desired mode.
4. From the Item column, select the functions to assign.
Clearing a function
Select the location to clear and then select [Delete].

(2) Assigning to the function menu



Procedure

1. Select [Function SW] from the Input Device list.
2. Select a mode to assign a function from the Mode list.
3. Select a location to assign.
Function menu arrows
Arrows (double arrows) indicate the directions in which you can turn the multirotary encoders for the menus below the arrows.

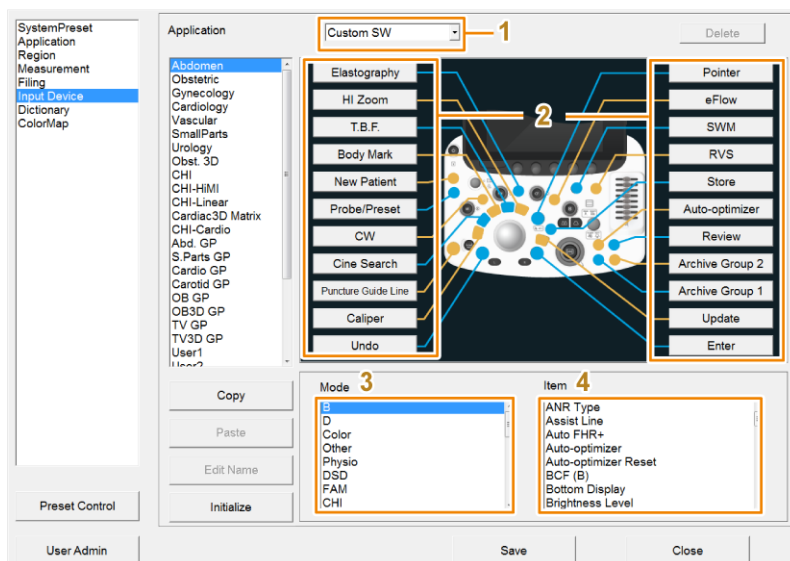


4. From the Mode column under Select Item, select the desired mode.
5. From the Item column under Select Item, select the functions you want to assign.

Clearing a function

Select the location to clear and then select [Delete].

(3) Assigning to custom switches



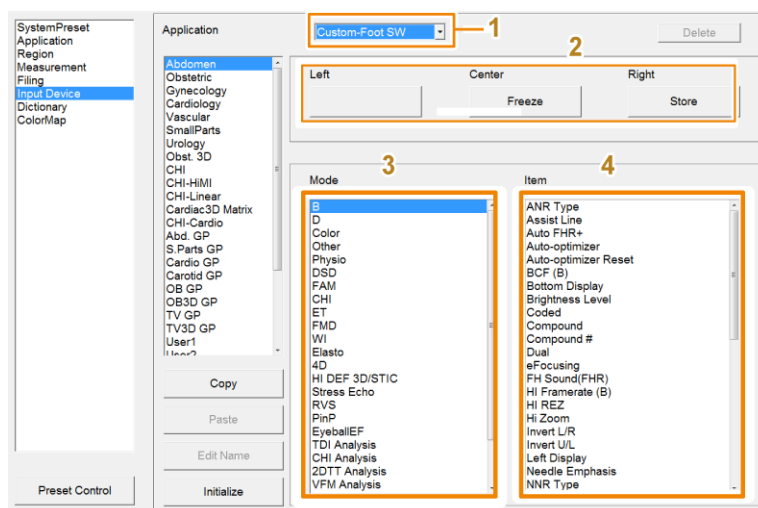
Procedure

1. Select [Custom SW] from the Input Device list.
2. Select the switch to assign.
3. From the Mode column, select the desired mode.
4. From the Item column, select the functions to assign.

Clearing a function

Select the switch to clear and then select [Delete].

(4) Assigning to custom foot switches



Procedure

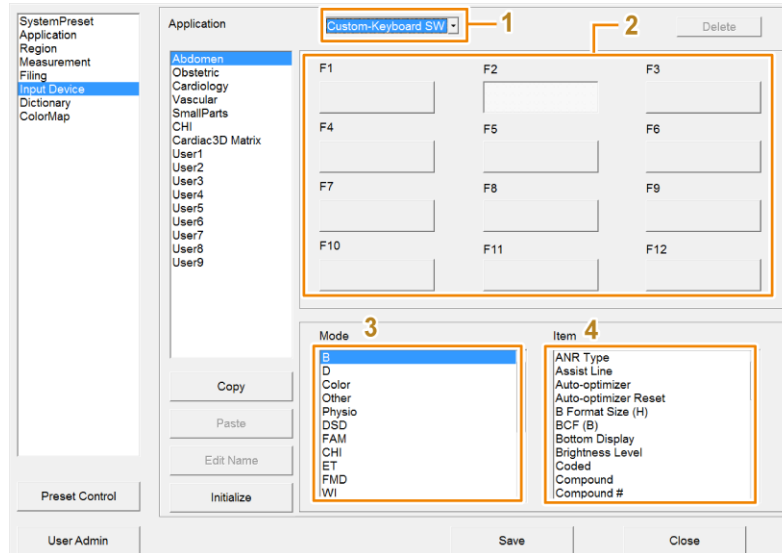
1. Select [Custom-Foot SW] from the Input Device list.

2. Select the switch to assign.
3. From the Mode column, select the desired mode.
4. From the Item column, select the functions to assign.

Clearing a function

Select the switch to clear and then select [Delete].

(5) Assigning functions to custom keyboards



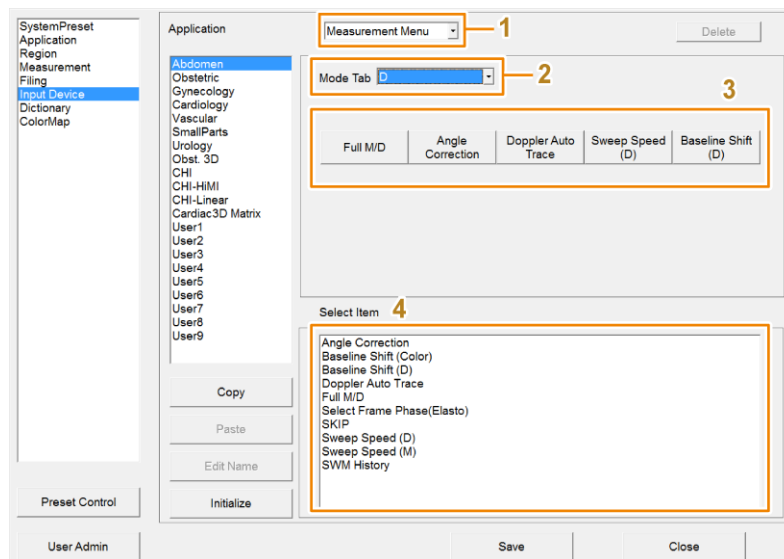
Procedure

1. Select [Custom-Keyboard SW] from the Input Device list.
2. Select a key (F1 to F12) to assign.
3. From the Mode column, select the desired mode.
4. From the Item column, select the functions to assign.

Clearing a function

Select the key to clear and then select [Delete].

(6) Assigning Functions to the Multi Rotary Encoder Region in the Measurement Menu



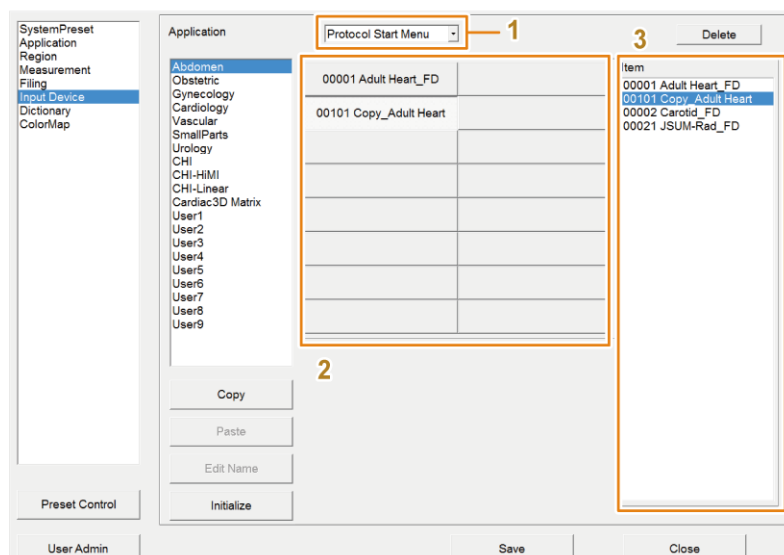
Procedure

1. Select [Measurement Menu] from the Input Device list.
2. Select a mode to assign a function from the Mode Tab list.
3. Select a location to assign.
4. From the Select Item column, select the functions you want to assign.

Clearing a function

Select the location to clear and then select [Delete].

(7) Assigning protocols to the Protocol Start menu



Procedure

1. Select [Protocol Start Menu] from the Input Device list.

2. Select a location to assign.
3. From the Item column, select the protocols to assign.

Clearing a function

Select the location to clear and then select [Delete].

10.8 Dictionary

Configures the user dictionary and system dictionary.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Dictionary].
3. Changing the dictionary settings.

Registering words into a dictionary

Select [Registration] and register words on the screen that opens.

For details, see *1.6.5 Registering a word in menu format in a user dictionary* on page 34 and *1.6.6 Registering a word in list format to a user dictionary* on page 35.

Changing the name of a dictionary

Enter a name into the Dictionary Name column (1 in the figure below). Enter no more than 8 characters. Only alphanumerics can be used.

Configuring combined use with the system dictionary

Select the button (2 in the figure below) that corresponds to the dictionary number for the System Dictionary.

- Not Use: Use only the user dictionary.
- Use: Combine the user dictionary and system dictionary.

Dictionary Name	System Dictionary
1. Dic 1	Not Use
2. Dic 2	Not Use
3. Dic 3	Not Use
4. Dic 4	Not Use
5. Dic 5	Not Use
6. Dic 6	Not Use
7. Dic 7	Not Use
8. Dic 8	Not Use
9. Dic 9	Not Use
10. Dic 10	Not Use
11. Dic 11	Not Use
12. Dic 12	Not Use
13. Dic 13	Not Use
14. Dic 14	Not Use

4. Select [Save] to save settings.
 5. Select [Close] to return to the scanning screen.
- If the following message is displayed: "Save changes to preset data?"
Select [Yes] to save changes.

Select [No] to close the preset screen without saving changes.

Reference information

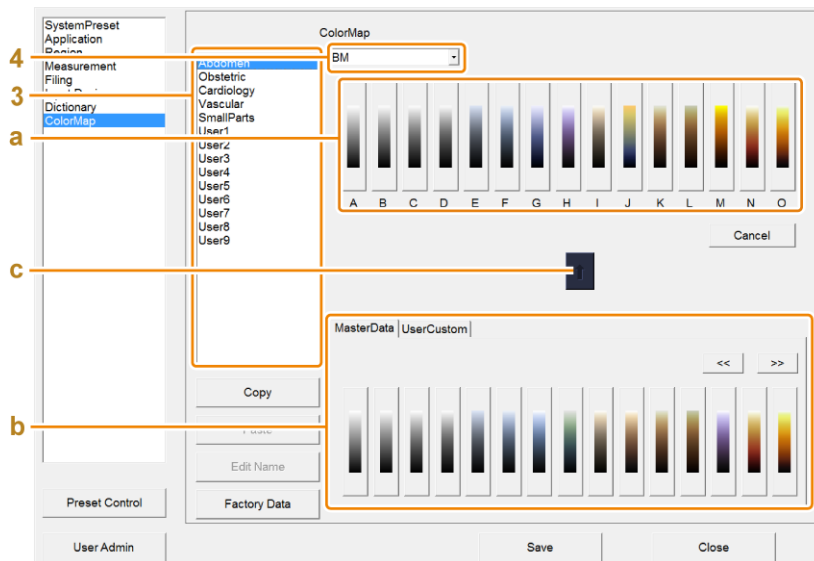
1.6.5 Registering a word in menu format in a user dictionary on page 34

1.6.6 Registering a word in list format to a user dictionary on page 35

10.9 Color maps

10.9.1 Editing the contents of a color map

You can configure 15 types per diagnostic field. These 15 types can be combined and edited.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [ColorMap].
3. Select the desired diagnostic field from the list.
4. Select the mode from the list.
5. Edit the color map.
 - a. Select the color map to change from A to O.
 - b. Select where to copy the color map from using the MasterData tab or the UserCustom tab.
 - c. Select ↑.
 - d. Repeat steps a through c for each color map.
6. Select [Save] to save settings.
7. Select [Close] to return to the scanning screen.

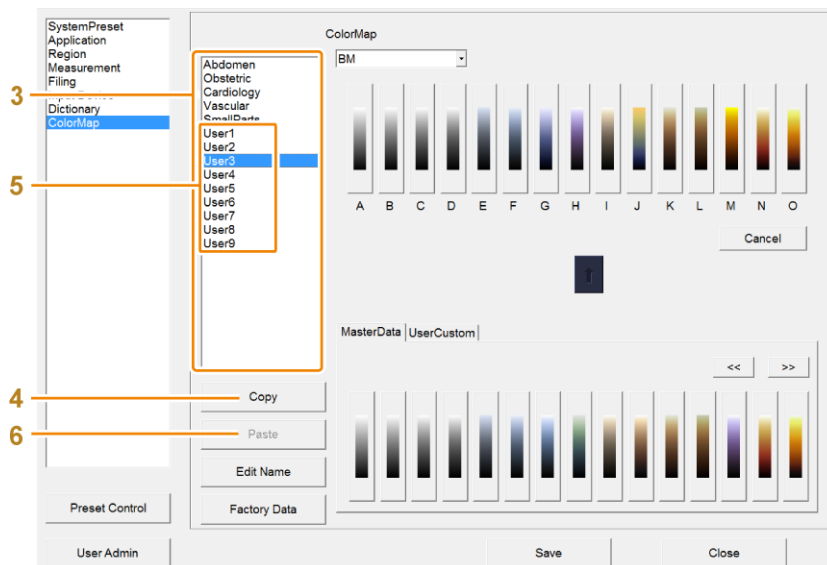
If the following message is displayed: "Save changes to preset data?"

Select [Yes] to save changes.

Select [No] to close the preset screen without saving changes.

10.9.2 Batch copying and pasting a color map

The parameters for a Color Map can be copied and then pasted into a user definition.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [ColorMap].
3. Select the diagnostic field to copy from the list.
4. Select [Copy].
5. Select the copy-destination diagnostic field from [User1] to [User9] in the list.
6. Select [Paste].
7. Select [OK] on the message.
 - The selected diagnostic field is overwritten.

10.9.3 Initializing a color map

This resets color maps back to their factory default settings.

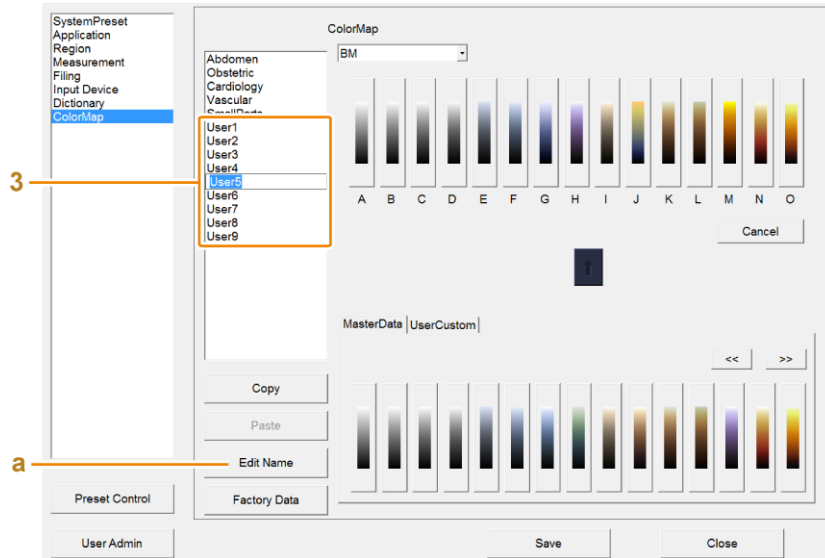
Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [ColorMap].
3. Select the desired diagnostic field from the list.
4. Select [Factory Data].
5. Select [OK] on the message.

- This resets it to the factory default settings. For user-defined color maps, this returns the color map of the copy source to its factory default settings. However, the name does not change.

10.9.4 Changing color map names

Changes the name of user settings.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [ColorMap].
3. Select the desired diagnostic field from [User1] to [User9] in the list.
NOTE: The names of factory default diagnostic fields cannot be changed.
4. Enter a name.
 - a. Select [Edit Name].
 - b. Enter a name.
 - c. Press the [Enter] key.

10.10 Loading and backing-up presets

This is for creating backups of presets and importing presets from a backup.

A wide variety of parameters are available in the system presets. You can create a backup of these parameters in a batch or by category. Backups can be imported to the system.

The data that can be imported and backed up is as follows.

- SystemPreset
- Application Menu + Q.S.S
- Application Menu
- Q.S.S

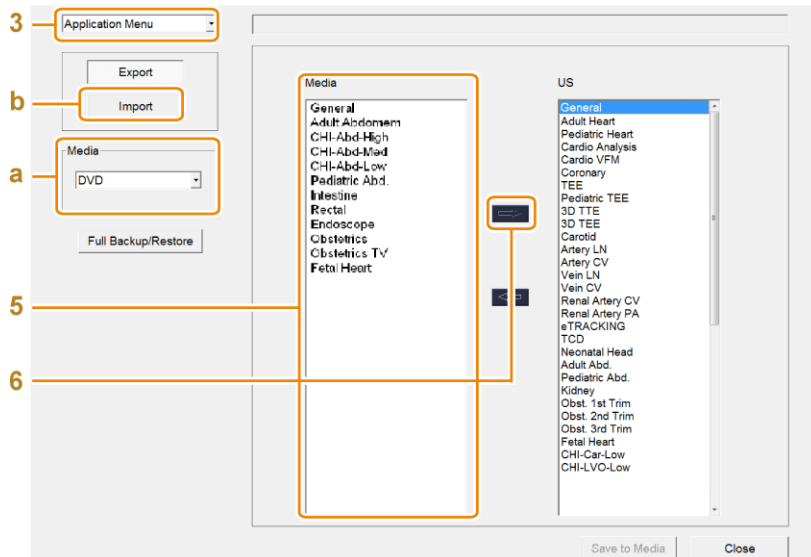
- Region Data Setting
 - Measurement
 - Filing
 - Input Device
 - Body Mark (Bitmap): User-created Bitmap data (import only)
 - Annotation
 - Color Map Setting (B/M/D)
 - Color Map Setting (Others)
 - Color Map (Bitmap): User-created Bitmap data (import only)
 - Protocol
 - Protocol (Bitmap): Reference image bitmap data for Guide View
- NOTE: If reference images are registered for each View, when you export a Protocol only and import it to another device, "No Image" is displayed in all views.
- NOTE: To redisplay the Protocol and reference images by importing the Protocol to another device, export the Protocol with the reference images registered and Protocol (Bitmap), and then import the Protocol in the configuration (Category and sequential number) that is the same as the configuration of the original device.

10.10.1 Importing the Selected Data into the System

This is for importing specified data to the system.

Prior confirmation

Connect the desired media. Alternatively, load a DVD.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Preset Control].

NOTE: The [Preset Control] is present on all preset screens.

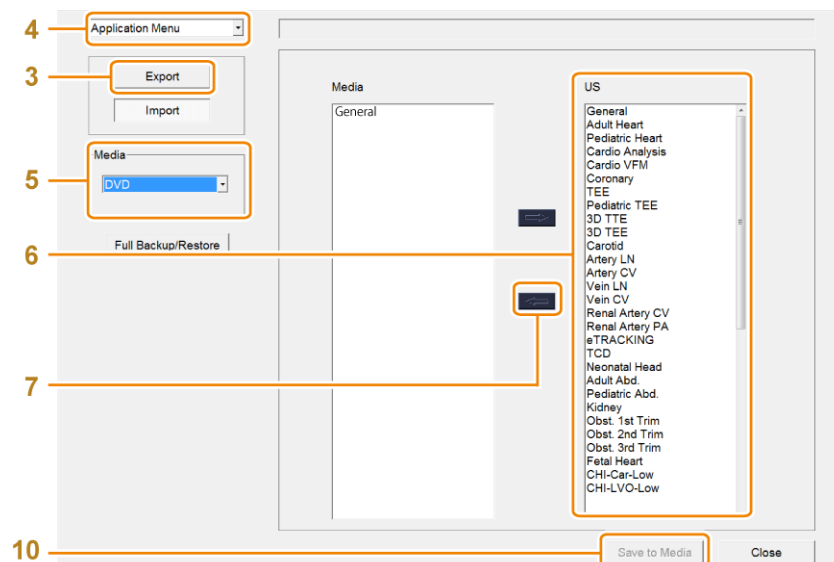
3. Select the desired data from the list.
4. Select the folder to import from.
 - a. Select the desired media.
 - b. Select [Import].
 - c. Select a folder.
 - d. Select [OK].
5. Select the data to load from the Media list.
6. Select [→].

10.10.2 Exporting the Selected Data from the System

This is for exporting the data you specify from the system.

Prior confirmation

Connect the desired media. Alternatively, load a DVD.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Preset Control].

NOTE: The [Preset Control] is present on all preset screens.
3. Select [Export].
4. Select the desired data from the list.
5. Select the storage location.
6. Select the data to load from the US list.
7. Select [←].

→ The data is saved to the Media list.

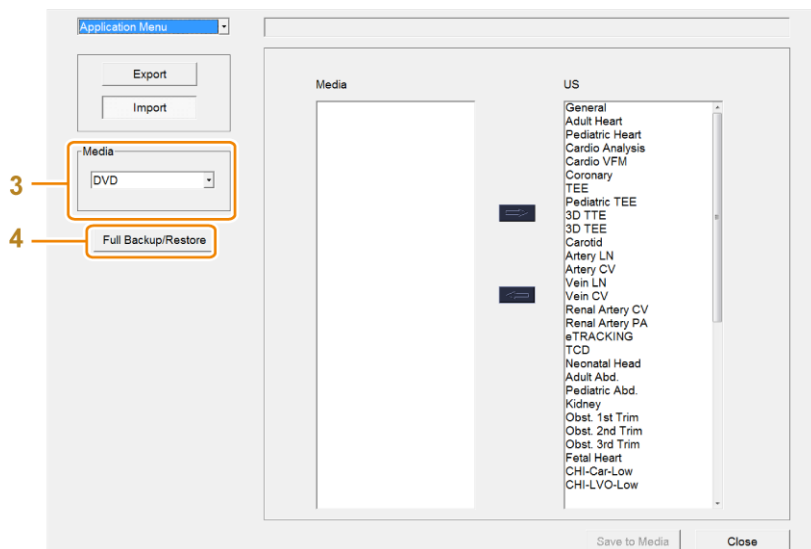
8. Repeat steps 4 to 7 for the target data.
9. Confirm that the data is included in the Media list.
10. Select [Save to Media].
 - The data in the Media list is saved to the specified media.

10.10.3 Creating backups

This is for creating a backup of all preset data.

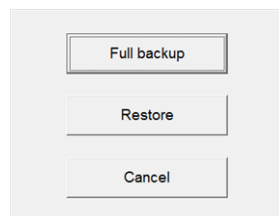
Prior confirmation

Connect the desired media. Alternatively, load a DVD.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Preset Control].
 - NOTE: The [Preset Control] is present on all preset screens.
3. Selects the storage media where the data is to be saved.
4. Select [Full Backup/Restore].
 - A dialog box is displayed.



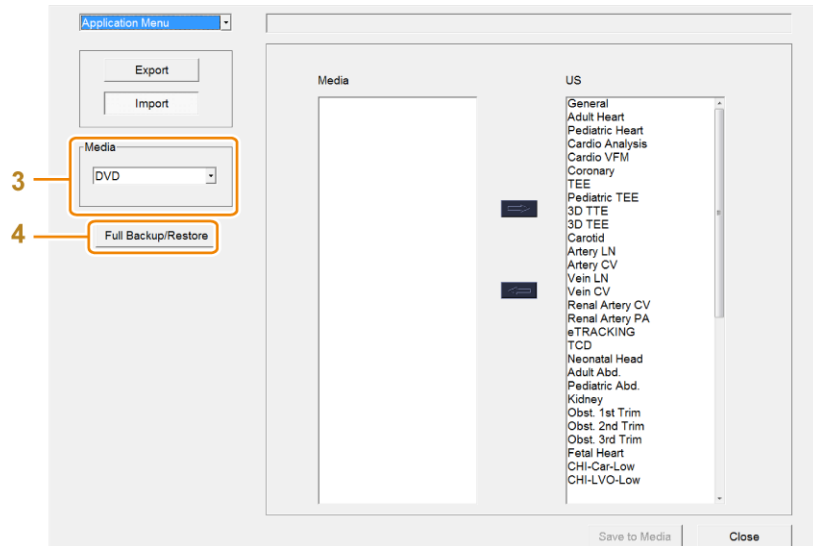
5. Select [Full backup] in the dialog box.
 - A backup file of all preset data is created. Backup files are saved in a folder with the name "device name_v version name_device serial number_YYYY_MMDD_HHMMSS".

10.10.4 Restoring from backup data

You can restore backup data to the system.

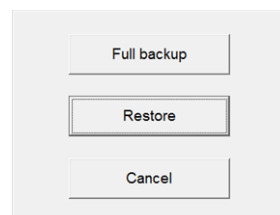
Prior confirmation

Connect the desired media. Alternatively, load a DVD.



Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [Preset Control].
NOTE: The [Preset Control] is present on all preset screens.
3. Selects the media device for uploading.
4. Select [Full Backup/Restore].
→ A dialog box is displayed.



5. Select [Restore] in the dialog box.
6. Select the backup data from list.
7. Select [OK].
→ The following message appears: "Setup will be overwritten. Do you still want to continue?"
8. Select [Yes].
9. When the "Preset Settings updated. System will reboot to reflect the setting changes." message appears, select [OK].

→ The following message appears: "Do you want to restore the network setting from backed up data? Current data will be Overwritten."

10. Select whether to copy the network settings.

Network settings data

Applies to DICOM categories within the system presets.

- [Yes]: All the data including the network settings is copied.
- [No]: All data except for the network settings is copied.

→ The data is restored to the system.

11. Restart the system.

→ The restored backup data is applied to the system.

10.11 Managing users

This system can be used by registered users only. Patient data, system settings, and audit logs are managed and protected.

By granting system operation permissions to registered users only, patient data can be protected and access to patient data can be tracked. There are three levels of user access permissions, which helps to maintain system statuses such as presets.

By using presets, you can perform the following operations:

- Register and delete users.
- Change the access permissions, specify lock settings, and unlock the locked account.
- Set, use, and view audit logs.
- Specify complexity rules for user authentication passwords, and set and update the expiration dates of user authentication passwords

If user authentication is set, user management in presets is limited to users with Level 1 access permissions. User name and password are necessary to display the user management screen.

NOTE: Be sure to appropriately manage user names and their passwords so that they are not leaked to third parties.

Access permissions and content

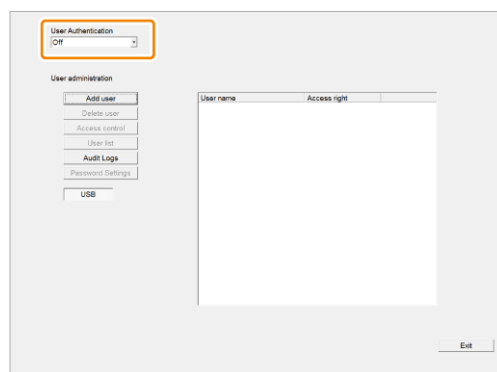
Access permission	Level 1	Level 2	Level 3
Managing users - Settings for user authentication functions - User management (register, delete, change access permissions) - Audit logs (ON/OFF, viewing, deleting, and outputting to external media) - Setting and updating the expiration dates of user authentication passwords - Specifying complexity rules for user authentication passwords - Specifying lock settings for user access permissions and unlock the locked account.	Yes	×	×
Access to the database of patient data	Yes	Yes	×
Changing parameters (including measurement) of presets	Yes	Yes	×
Changing login passwords	Yes	Yes	Yes
Other controls	Yes	Yes	Yes

10.11.1 Configuring user authentication

Set whether to display the login screen when starting the system.

Procedure

- Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
- Select [User Admin].
- Enter the user name and password, and then select [OK].
- Configure the User Authentication.
 - On
Configures for user authentication. Displays the login screen from the next startup.
 - Off
Disables user authentication. Does not display the login screen from the next startup. The authorized controls based on access permissions are also removed.



- Select [OK] on the message.

→ Settings are applied from the next startup.

10.11.2 Registering users

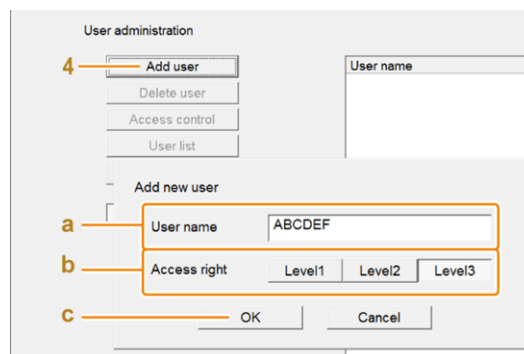
You can register a user of the system.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [User Admin].
3. Enter the user name and password, and then select [OK].
4. Select [Add User].
5. Configure the user name and access rights.
 - a. Enter a user name. Enter no more than 16 alphanumeric characters.
 - b. Select the access permissions.
 - c. Select [OK].

→ The user is registered.

The password for the newly registered user is configured during initial login.



(1) Setting passwords

Procedure

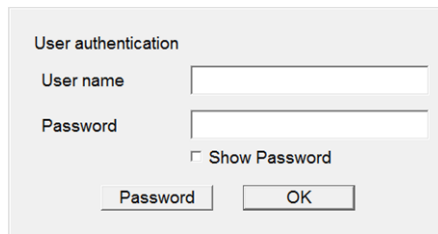
1. Start the system.
2. Enter the user name and current password on the login screen and then select [Password].

NOTE: If this is the first login after a user is registered, leave the password blank.

NOTE: If you click the Information button, the complexity rules that are currently specified are displayed. Refer to this information when changing the password.

NOTE: If you select the Show Password check box, the character string specified for Password is displayed.

NOTE: If you leave the Show Password check box as it is after selecting it, the entered password might be seen and abused by a third party. For this reason, you must not leave the Show Password check box as it is after selecting it.



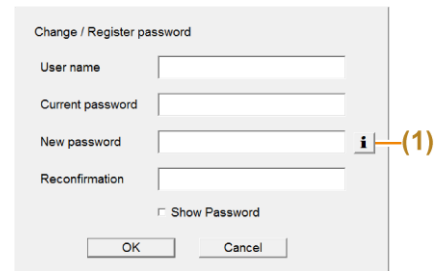
User authentication

User name

Password

☐ Show Password

Login screen



Change / Register password

User name

Current password

New password (1)

Reconfirmation

☐ Show Password

Password change screen

(1) Information button

Displays the password complexity rules that are currently specified.

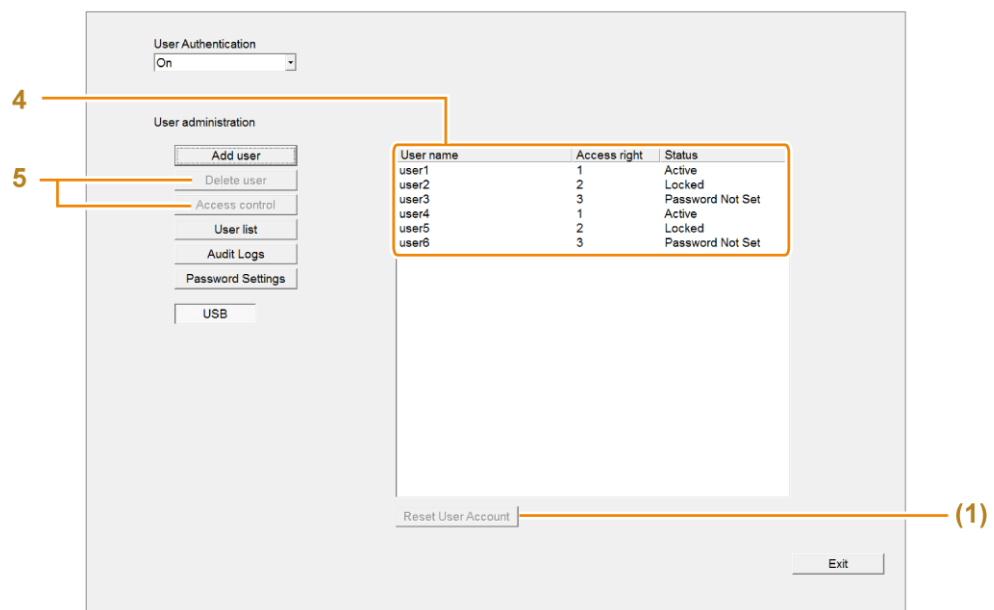
3. Enter the user name and current password on the password change screen.
NOTE: If this is the first login after a user is registered, leave the password blank.
4. Enter a new password consisting of 4 to 16 alphanumeric characters.
NOTE: Space characters cannot be used.
5. Enter the new password again.
6. Select [OK].

10.11.3 Editing registered users

This function specifies settings for changing access permissions of registered users, initializing locked access permission, and deleting registered users.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [User Admin].
3. Enter the user name and password, and then select [OK].
4. Select a user.



User Authentication
On

User administration

(4)

(5)

User name	Access right	Status
user1	1	Active
user2	2	Locked
user3	3	Password Not Set
user4	1	Active
user5	2	Locked
user6	3	Password Not Set

(1)

Status

Display	Status of the user
Active	The user can log in.
Locked	The account is locked and the user cannot log in.
Password Not Set	The user is registered for the first time. Alternatively, no password is set after the locked access permission is initialized.

(1) [Reset User Account]

This button is enabled only if you select a user whose Status is Locked.

If you select this button, the locked access permission is initialized and the Status is changed to Password Not Set. Then, the user is restored to the status in which a password can be set.

5. Edit the user.

Changing Access Permissions

- a. Select [Access Control].
- b. Change access permissions in the dialog box.
- c. Select [OK].

Deleting a User

- a. Select [Delete User].
- b. Select [Yes] on the message.

10.11.4 Outputting user lists

This function outputs the registered users and their access permissions to a CSV file.

Prior confirmation

Connect media to a USB port.

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [User Admin].
3. Enter the user name and password, and then select [OK].
4. Select [User list].

→ Output the user name and access permissions list as a CSV file to the USB.

10.11.5 Setting up and using the audit log

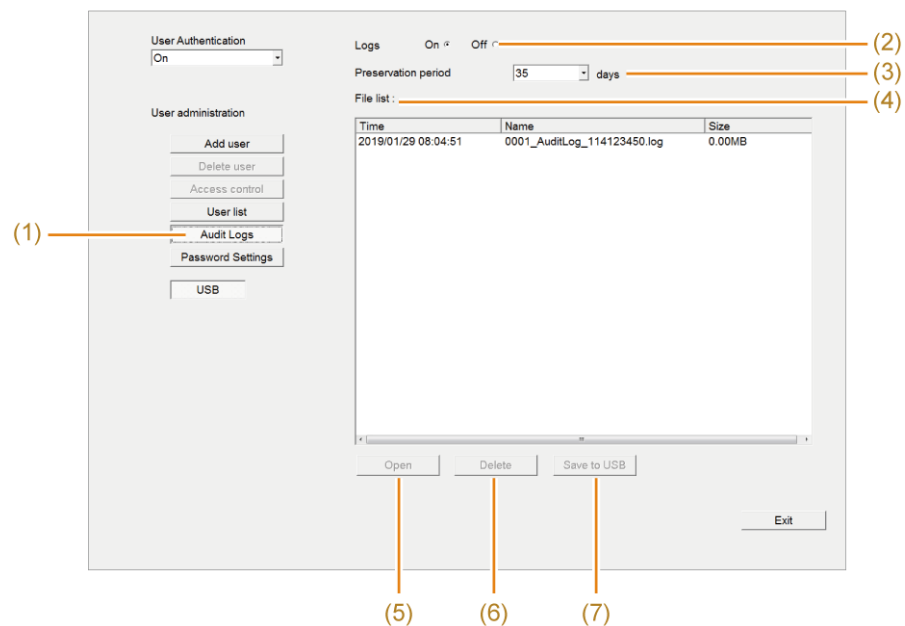
Accesses related to user management and patient data are recorded as audit log data.

NOTE: The following information is recorded as audit log data:

- Managing users
 - Attempts to log in to the user management screen
 - User authentication settings, registration and editing of users, and output of user lists
 - Attempts (success or failure) to log in to, and log off from, user authentication
 - Registration and updates of user authentication passwords
 - Setting and updating the expiration dates of user authentication passwords
- Patient data access
 - User registration on the ID screen
 - Searches, updates, and deletions of patient data on the ID screen and data management screen
 - Saving of images
 - Searches, deletions, and output to storage media of saved images

Procedure

1. Press the [Probe/Preset] key, and then select [Preset Setup] on the touch panel.
2. Select [User Admin].
3. Enter the user name and password, and then select [OK].
4. Select [Audit Logs].
 - The settings screen for audit logs opens.



- (1) [Audit Logs]
The settings screen for audit logs opens.
- (2) Logs
Sets audit log records to On or Off.
This setting takes effect after you restart the system.
- (3) Preservation period
Sets a storage period for audit logs.
This setting takes effect after you restart the system.
- (4) File list
Displays a list of audit log files stored in the system.
- (5) [Open]
Displays the content of the audit log file selected in File list
- (6) [Delete]
Deletes the audit log file selected in File list.
- (7) [Save to USB]
Saves, in text format, the audit log file selected in File list to an externally-connected medium.

10.11.6 Settings for User Authentication Passwords

In the screen for setting user authentication passwords, you can specify settings regarding the period for which passwords are valid, notification of the valid period, password complexity rules, histories, and locking of access permissions.

Procedure

1. Press the [Probe/Preset] key.
2. Select [Preset Setup] on the touch panel.
3. Select [User Admin].
4. Enter the user name and password, and then select [OK].
5. Select [Password Settings].
→ The Password Setting screen is displayed.

6. Select a tab.
7. Edit the parameters.
8. Select [Save] to save settings.
9. Select [Exit] to return to the preset screen.

(1) Password Expiration tab

Parameters	Options	Description
Password Expiration	0 to 180	Sets the number of days for the period for which passwords are valid. If you select [0], passwords are valid indefinitely. The default value is [0].
Password Expiration notice	1 to 30	Sets the number of days for displaying the message when the password expiration date is approaching.

(2) Password Complexity tab

Parameters	Options	Description
Minimum Password Length	4 to 16	Sets the minimum number of characters for a password. The value needs to meet the following condition: Minimum Password Length <= Maximum Password Length.
Maximum Password Length	4 to 16	Sets the maximum number of characters for a password. The value needs to meet the following condition: Minimum Password Length <= Maximum Password Length.
Num. of Changed Char.	1 to 4	Sets the minimum number of characters that need to be changed in the password.

(a) Character Groups

NOTE: Turn On the settings of the parameters to be enabled.

NOTE: If you enable Uppercase Char. or Lowercase Char., you need to turn On the setting of Alpha Char.

NOTE: If you enable Special Char. or Digits, you need to turn On the setting of Non-Alpha Char.

Parameters	Options	Description
Alpha Char.	1 to 8	Sets the minimum number of alphabetical characters that need to be included in a password.
Uppercase Char.	1 to 4	Sets the minimum number of alphabetical characters (uppercase) that need to be included in a password.
Lowercase Char.	1 to 4	Sets the minimum number of alphabetical characters (lowercase) that need to be included in a password.
Non-Alpha Char.	1 to 8	Sets the minimum number of numeric characters ^{*1} or special characters ^{*2} that need to be included in a password.
Special Char.	1 to 4	Sets the minimum number of special characters ^{*2} that need to be included in a password.
Digits	1 to 4	Sets the minimum number of numeric characters ^{*1} that need to be included in a password.

*1.

0 to 9

*2.

~ ! @ # \$ % ^ & * () ` < > ? : " { } | , . / ; ' [] \ _ + =

Note that space characters are not included.

(b) Password Restrictions

NOTE: Select the check boxes for the parameters to be enabled.

Parameters	Options	Description
Disallow Consecutive Identical Characters	2 to 4	Disallows a password in which the number of consecutive identical characters exceeds the set value.
Disallow Username in Password		Disallows a password that includes the entire name of the user who logged in to the system.
Disallow Digit as First Character		Disallows a password that begins with a numeric character.
Disallow Digit as Last Character		Disallows a password that ends with a numeric character.
Disallow Incremental Password		Disallows a password in which only the last character is changed.
Disallow Consecutive Characters(3 or more) of Username		Disallows a password that includes three or more consecutive characters of the name of the user who logged in to the system.

(3) Others tab

Parameters	Options	Description
Num. of Remembered Passwords	1 to 5	Sets the number of stored passwords in the password history. This disallows a new password for which a character string that matches the stored history is specified.
Minimum Password Age	0 to 2	Sets the number of elapsed days required for passwords to be changed.
Account Lock Attempts	0 to 5	Sets the number of attempts to enter a password for which the access permission is locked. The number of attempts is reset if the user successfully logs in or the system is restarted. If you specify [0], access permissions are not locked. If you enter an incorrect password the specified number of times or more in a row, the access permission is locked.

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