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ARIETTA 50
Diagnostic Ultrasound System

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Instruction Manual
How to Use

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.

Hitachi, Ltd.

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Preface

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Introduction

Thank you for purchasing the ARIETTA 50 Diagnostic Ultrasound System by Hitachi, Ltd.
This document is the instruction manual for the ARIETTA 50 Diagnostic Ultrasound System.

Name and classification of medical equipment

Product name

Diagnostic Ultrasound System ARIETTA 50

Revision history

Revision no.: 0
Date of revision: September 26, 2018

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).
The following symbols are used in this manual.

Character	Explanation
α	Alpha
γ	Gamma
π	Pi

About the ARIETTA 50 Diagnostic Ultrasound System

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 Hitachi's 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 attachment, to this system, of parts or devices other than those specified by the manufacturer. 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.

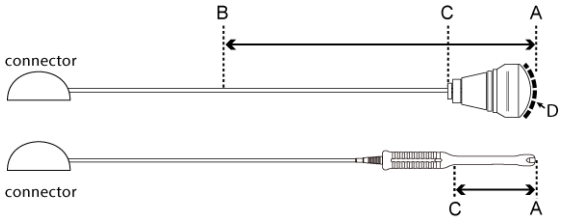
- Clean and inspect the system periodically. For details, see "Instructions for Use".
- If any abnormality occurs during the use of the system, remove the probe from the patient immediately, and stop using the system. If the patient exhibits unusual or abnormal symptoms, immediately provide the appropriate 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 this system as described below.
   - Install the system according to the instructions given in "Setup Before Use" in "Instructions for Use".
   - Install it in an environment that satisfies 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: 531 mm ± 10% Depth: 767 mm ± 10%
	Height: 1317 mm to 1567 mm
External dimensions If the flexible monitor arm (optional) is used	Width: 531 mm ± 10% Depth: 797 mm ± 10%
	Height: 1280 mm to 1647 mm
Weight	64 kg ± 10% (main unit only), 105 kg ± 10% (with all options included)

Classification of the ARIETTA 50 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.

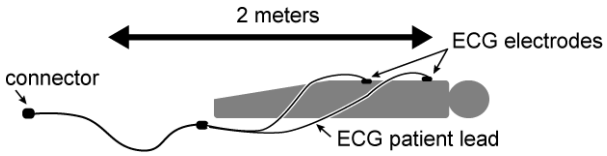


The upper figure is an example of a probe for surface and intra-operative use. The lower figure is an example of a body cavity probe.

Probe application	Applied part	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
Inside body cavities	Between A and C	Between A and C	-

- ECG
  Parts that are within 2 meters of the biosignal sensor are handled 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.

This symbol on the equipment or on its packaging indicates that this equipment shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic products. By ensuring this equipment is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this equipment. The recycling of materials will help to conserve natural resources.

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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Basic controls

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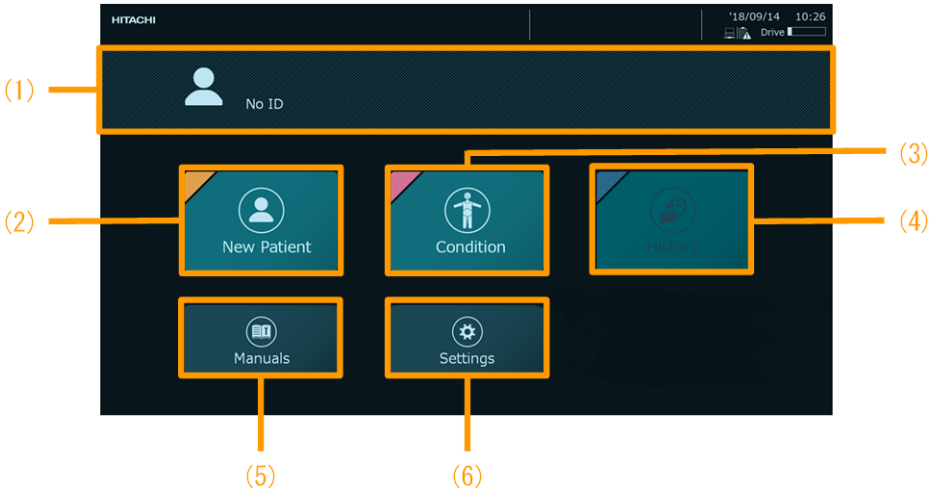
1.2 Operation panel
1.3 Logging in and logging out
1.4 Switching probes
1.5 Switching presets
1.6 Adjusting the ultrasound output power
1.7 Entering comments
1.8 Displaying body marks

1.1 Screen display

1.1.1 Home Screen

Appears after the [HOME] Software button is tapped.

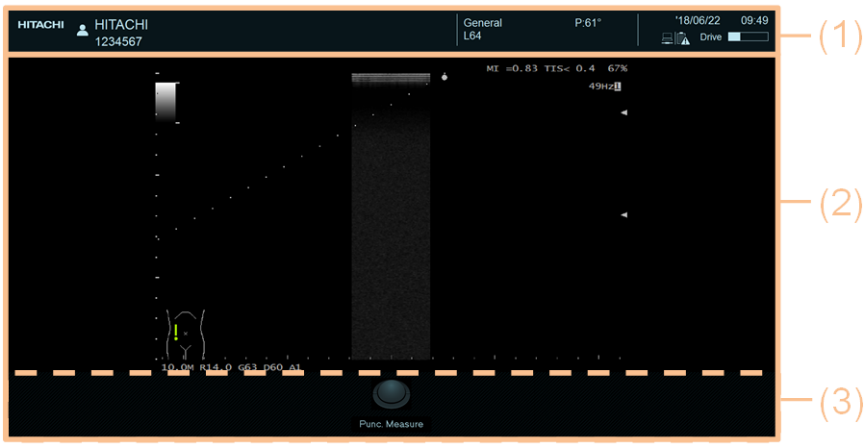


(1) Patient ID	Displays the patient ID.
(2) [New Patient]	Enter patient information.
(3) [Condition]	Enter body part examined, patient body shape, probes that will be used and other scanning conditions to start scanning.
(4) [History]	Displays the patient history screen.
(5) [Manuals]	Displays the instruction manual.
(6) [Settings]	Displays the Common Preset menu. Use this menu for making settings.

1.1.2 Scanning Screen

1.1.2.1 Overview

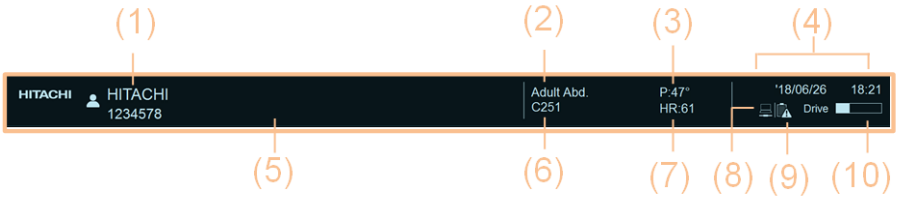
The scanning screen has the following layout.



Scanning Screen Configuration

(1)	Information Area	Displays patient data, messages and icons indicating system status and other conditions.
(2)	Ultrasonic image Area	Displays ultrasonic images.
(3)	TBF Display	Displays the state of the trackball Function key

1.1.2.2 Information Area



Information Area

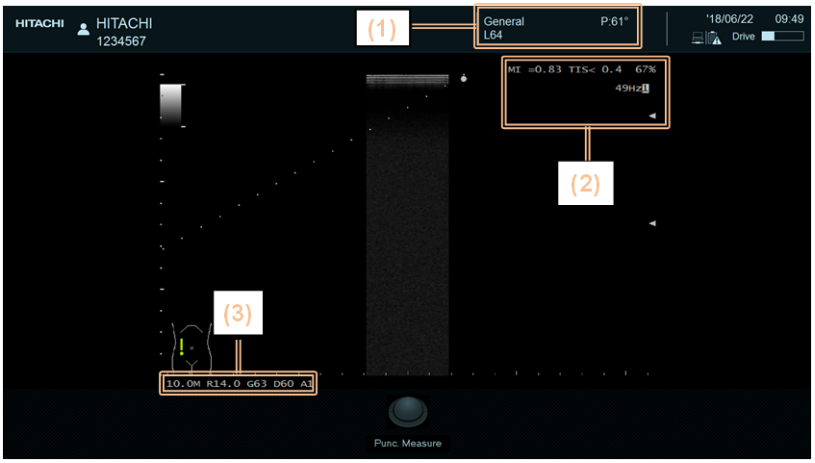
(1)	Patient Data	Displays the patient ID and patient name.
(2)	Preset name	
(3)	Puncture Angle	
(4)	Date/Time	During real-time image display: Current time In freeze mode: Time when image was frozen In review mode: Time when image was saved
(5)	Assist Message display area	Under some system conditions, it may display a message.
(6)	Name of selected probe	
(7)	Heart-rate	
(8)	Indicates the connection status	LAN connection
(9)	Remaining battery capacity	

Battery charging The power cable is not connected.	Battery in use	Remaining battery charge
		80% or more
		60% or more, but less than 80%
		40% or more, but less than 60%
		20% or more, but less than 40%
		Less than 20%

(10) Available space on the system hard disk

HDD status	HDD Usage
	1 to 10%
	11 to 20%
	21 to 30%
	31 to 40%
	41 to 50%
	51 to 60%
	61 to 70%
	71 to 80%
	81 to 90%
	91 to 100%
	Error

1.1.2.3 Information displayed on the ultrasound Image

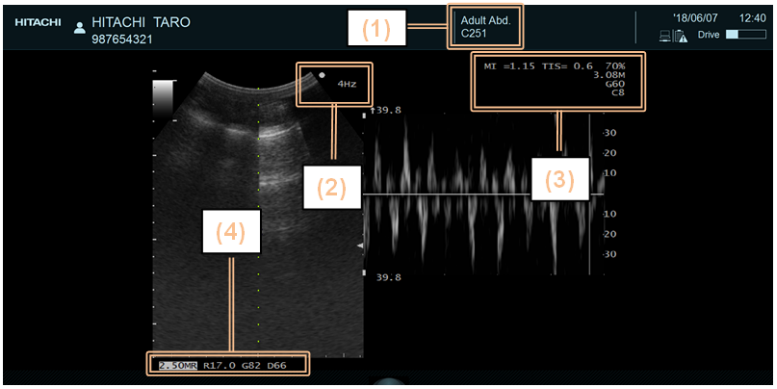


B mode images

(1) Automatic display area 1

"General"	Preset name
"L64"	Selected probe

	"P: 61°"	Puncture angle of Puncture Guide Line (when Puncture Guide Line is displayed)
(2)	Automatic display area 2	
	"MI=0.83"	Mechanical index
	"TIS<0.4"	Thermal index (TIS/TIB/TIC)
	"67%"	Acoustic output value
	"503/503"	Display frame number/number of images stored in the cine memory
	"49 Hz"	Frame rate (number of frames per second for an ultrasonic image)
	"1"	Screen number
(3)	Automatic display area 3	
	"10.0 M"	Transmission frequency
	"R14.0"	Diagnosis depth (unit: cm)
	"G63"	Gain
	"D60"	Dynamic range
	"A1"	AGC (hidden when Off)

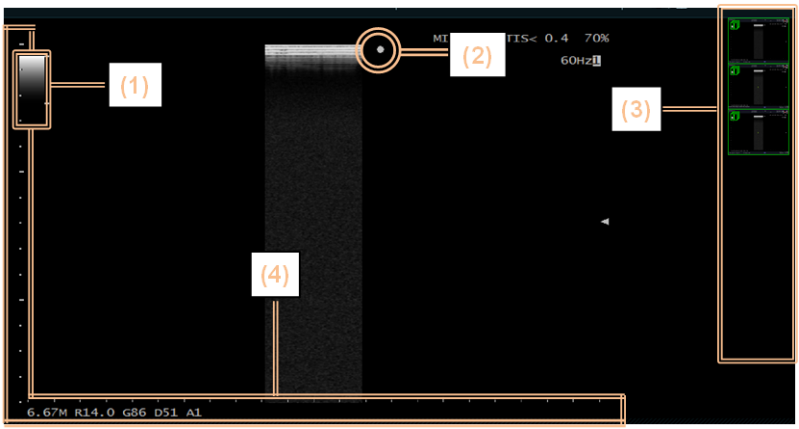


PW mode images

(1)	Automatic display area 1	
	"Adult Abd."	Preset name
	"C251"	Selected probe
(2)	Automatic display area 2	
	"286/286"	Display frame number/number of images stored in the cine memory
	"4Hz"	Frame rate (number of frames per second for an ultrasonic image)
(3)	Automatic display area 3	
	"MI=1.15"	Mechanical index
	"TIS=0.6"	Thermal index (TIS/TIB/TIC)
	"70%"	Acoustic output value
	"3.08M"	Transmission frequency (PW)
	"60°"	Correction value for Doppler angle (Angle Correct)

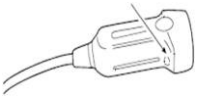
	"G60"	Gain
	"C8"	Contrast (PW)
(4)	Automatic display area 4	
	"2.50 MR"	Transmission frequency (B)
	"R17.0"	Diagnosis depth (unit: cm)
	"G82"	Gain
	"D66"	Dynamic range
	"A1"	AGC (hidden when Off)

The graphics below indicate the following details.



(1) Grayscale bar (gradation of B mode image)

(2) Orientation mark: This mark coincides with the front direction mark on the probe.



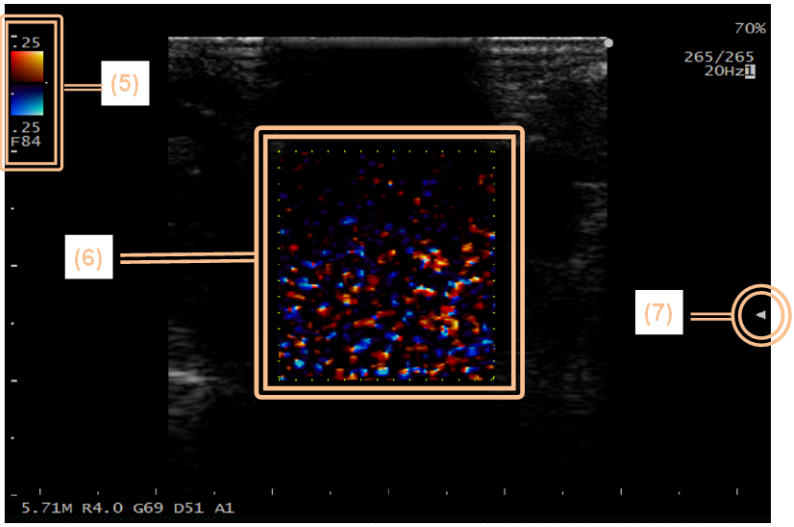
Active state: An active image is the image on which operations can be performed when two or more images are displayed

Inactive state

(3) Thumbnail area (displayed on the right of the screen)
Displays a stored image in thumbnail view.

(4) Scale mark: The scale interval differs with the display range.

Display range	Scale (small)	Scale (large)
R0.5 - R2.0	0.1 cm	0.5 cm
R2.5 - R6.0	0.5 cm	1.0 cm
R7.0 - R29.0	1.0 cm	5.0 cm
R30, R35, R40	5.0 cm	10.0 cm



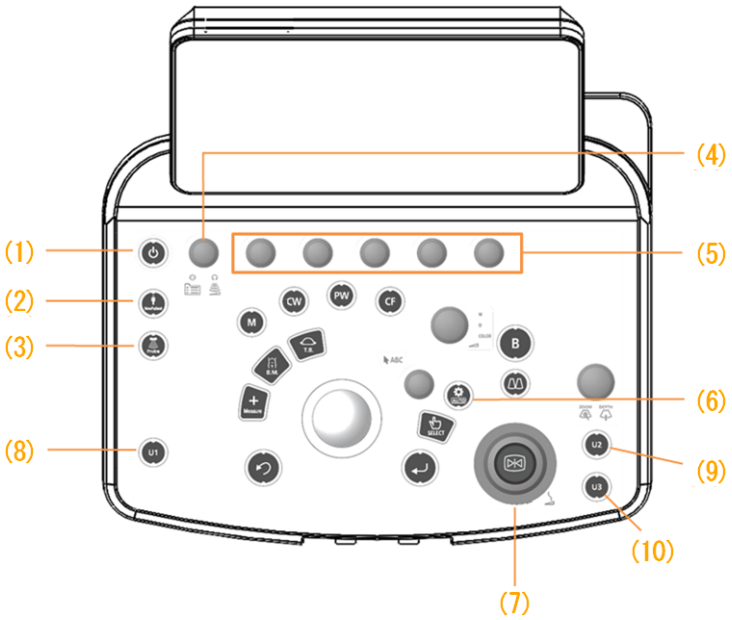
Graphics information in a color display

(5) Color bar: Color coded indication and flow velocity set in the color map
"F84" : Color Gain
"25" : Velocity value

(6) Color map: Color coded flow velocity.

(7) Focus mark: Focus location

1.2 Operation panel



Operation panel diagram

(1) [Power] key

(2) [New Patient] key

(3) [Probe] key

(4) [Menu] key
[Acoustic Power] rotary encoder

(5) Rotary encoders

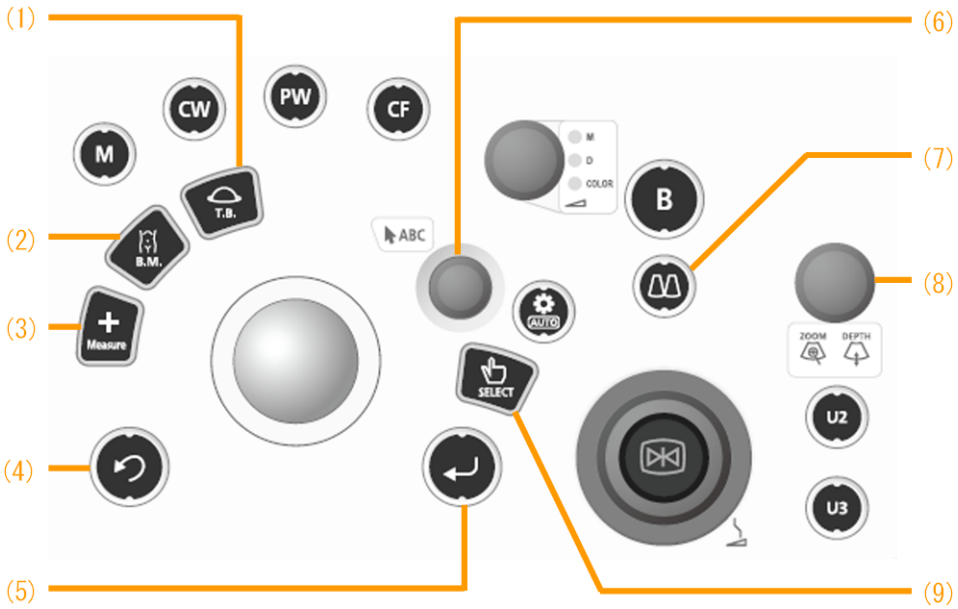
(6) [Auto Optimizer] key

(7) [Freeze] key
[Freeze] rotary encoder

(8) [User 1 (Measurement)] key

(9) [User 2 (Print)] key

(10) [User 3 (Store)] key



Operation panel (Trackball Area)

(1) [Track ball function] key
Referred to as the [T.B.F.] key in this manual

(2) [Body Mark] key

(3) [Caliper] key

(4) [Cancel] key

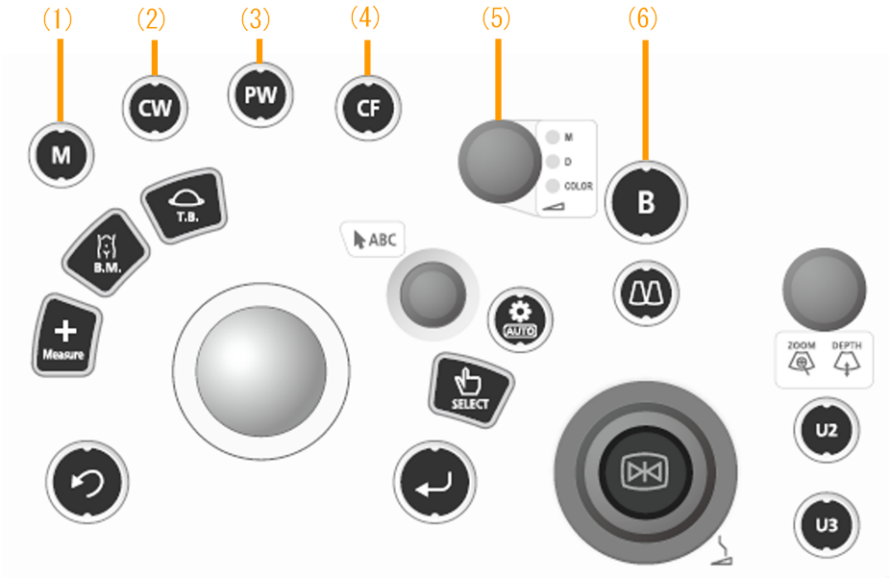
(5) [Enter] key

(6) [Pointer] key
[Pointer] rotary encoder

(7) [Dual] key

(8) [Zoom/Depth] rotary encoder

(9) [Select] key



(1) [M] key

(2) [CW] key

(3) [PW] key

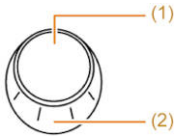
(4) [CF] key

(5) Multi gain rotary encoder

(6) [B] key

Push button-type integrated rotary encoder

Operate the rotary encoders as follows:



(1) Keys
Press to operate.

(2) Rotary encoder
Turn to operate.

1.2.1 Touch panel

(1) Screen display

(1) Software Buttons
You can use presets ([Accessories] > [Preset] > [Setup Menu] > [Software Button]) to assign functions.

(2) Function Menu
You can use presets ([Accessories] > [Preset] > [Setup Menu] > [Menu-Function]) to assign functions.

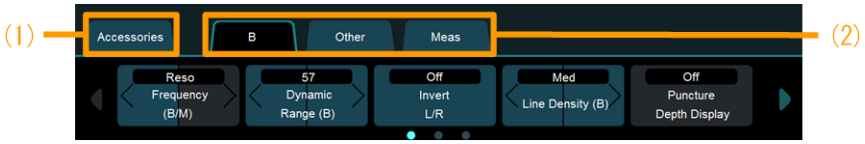
(3) TGC
If you select [TGC], the TGC slider is displayed, and you can adjust TGC.

(2) Software Buttons

You can use the following functions by assigning them to software buttons.

Function name	Functions
Quad	Displays B mode images in the quad-screen view.
FAM	Draws an M mode cursor line (FAM cursor) on a B mode image, and creates an M mode image from the information about the area of interest under the cursor line.
Power Doppler	Displays color on the image according to the intensity of the color Doppler signal. It is sensitive to slow blood flows.
eFlow	Displays in the Power Doppler mode in high-resolution. This function is suitable for closely observing blood flows.
TDI	A mode for visualizing the movements of myocardial tissues, etc.
EXT	Select this function when displaying images from the HD Video Recorder.
Full M/D	Displays M and D mode images in the single-screen view.
Send	Use this function to send images to the server.
Curser/B.L.S.	Use this function to use the trackball to move the cursor or baseline.
CHI(On/Off)	Use this function to activate the CHI function.
Home	Use this function to display the home screen.
Measurement	Use this function to display the measurement menu.

(3) Function Menu



(1) [Accessories] tab

Item	Overview
ID	Displays the ID input screen (detailed version) without reverting to the default settings.
Preset	Displays the preset screen.
Review	Displays the Image Viewer.
Report	Display the report.
Manuals	Displays the instruction manual.

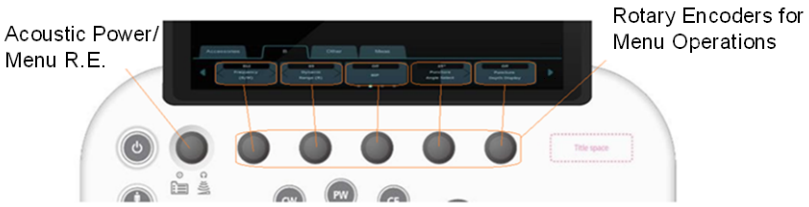
Item	Overview
End Study	Ends an examination and continues with other examinations of the same patient (when performing multiple examinations of the same patient).
Thumbnail	Displays thumbnails.

(2) Tabs for each mode

These tabs contain menu items that are grouped according to mode.

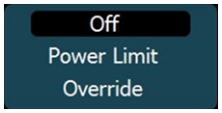
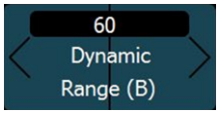
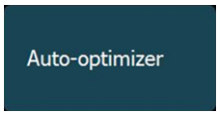
Depending on the item, you can use the touch panel or rotary encoders to perform operations.

Function menu items and their corresponding rotary encoders



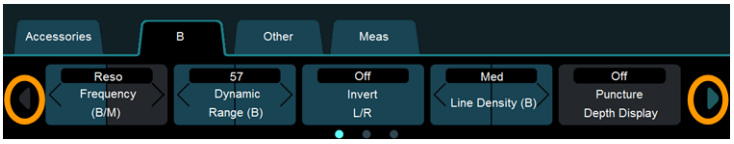
Using the function menu to perform operations

You can perform the following operations by using the corresponding function.

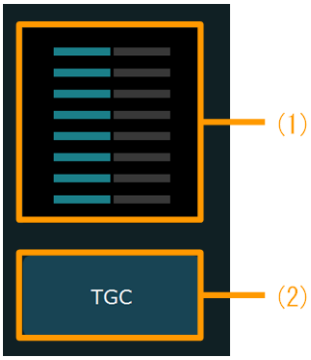
Menu item type	Switch example	Rotary encoder operation	Touch operations
Toggling between On and Off		Press the rotary encoder to toggle between On and Off.	Tap this item to toggle the function On and Off.
Changing values		Turn the rotary encoder to change the value.	Tap "<" or ">" to change the value.
When there is no setting		Press the rotary encoder to activate the function.	Tap this item to activate the function.

Changing the pages displayed in the function menu

Tap "<" or ">" next to the function menu.



(4) TGC

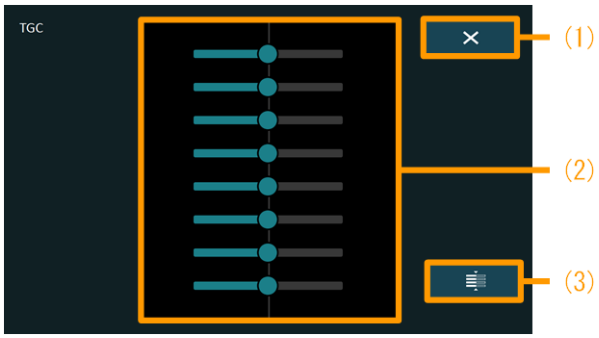


(1) TGC curve
The TGC curve that is currently being used is displayed.

(2) TGC software button

Adjusting TGC

1. Select the [TGC] software button.
The TGC settings screen is displayed on the touch panel.



(1) Exit button

(2) slider

(3) Reset button

2. Move the slider to the left or to the right to adjust TGC.

Resetting the TGC curve

- Tap .

Finishing the adjustment of the TGC curve

- Tap .

(5) Onscreen keyboard

Use the onscreen keyboard to enter text.
The onscreen keyboard is automatically displayed when you select a function that requires the entering of text such as comments, or when you select an input item on the ID input screen.

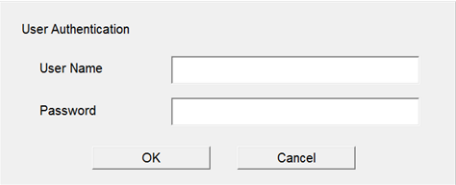
To hide the onscreen keyboard, tap .

To enter characters other than those above, select the keys below and change the display.

Entering capitalized text	
Entering special characters	
Entering arrows and special commands	

1.3 Logging in and logging out

Users are authenticated via a log-in screen, which opens at system startup and at log-off. If the User Authentication function is turned "On" during setup, the login screen opens at system startup or when logging off. To start using the system, users must be verified as an authorized user.



If the User Authentication function is turned "Off" during setup, the login screen will not appear.
Logging in and out is required when the system is configured for user identification.

Prior confirmation

Use the preset ([Preset Set-Up Menu > Menu-Function])to assign [Log Off] to the function menu.

Procedure

- Log in.
  a. On the login screen, enter your user name on User name and your password on Password.
  b. Select [OK].
     Use the entered user name and password for authentication. Once the information is authenticated, the system can be used.
     If the user name and/or password is wrong, a message such as "Invalid name or password." appears. Press [OK] and enter the correct user name and password.
- Registering Passwords for New Users.
  A new user is required to register a password for the first-time login.
  Only Level 1 users can register a new user. For details on user registration, contact a Level 1 user or system administrator.
  a. Enter new user name in User name on the login screen.
  b. Select [Password].
     The Change/Register Password dialog box is displayed.
  c. On New Password of the Change/Register password dialog box, enter the alphanumeric passwords with 4 to 16 characters.
  d. Enter the same password into Re-confirmation.
  e. Select [OK].
     The login screen is displayed when access is granted. If you selected [Cancel], the display returns to the login screen without setting any password.

- A message such as "Invalid password, please choose another." is displayed when the password contains a character that cannot be used or more characters or fewer characters than are allowed. Select [OK] and set a password again.
- A message such as "The passwords did not match, please re-enter your new password." is displayed when the passwords entered on New Password and Re-confirmation are not the same. Select [OK] and set a password again.

- Changing a password.
  Changing the password for the existing user.

  a. Enter user name into User name on the login screen.
  b. Select [Password].
     The Change/Register Password dialog box is displayed.
  c. Enter old password into Current Password.
  d. Enter new alphanumeric passwords with 4 to 16 characters into New Password.
  e. Enter new password into New Password as well as into Re-confirmation.
  f. Select [OK].
     The login screen is displayed when access is granted. If you selected [Cancel], the display returns to the login screen without setting any password.

     - A message such as "Invalid password, please choose another." is displayed when the password contains a character that cannot be used or more characters or fewer characters than are allowed. Select [OK], and then set a password again.
     - A message such as "The passwords did not match, please re-enter your new password." is displayed when the passwords entered on New Password and Re-confirmation are not the same. Select [OK], and then set a password again.
     - A message such as "Invalid name or password." is displayed if the User Name and the Current Password do not match.Select [OK], and then enter the User Name field and Current Password field again.

- Logging Off
  Use the preset ([Preset Set-Up Menu > Menu-Function])to assign Menu-Function/>[Log Off] to the function menu.
  You cannot log off when on Review, Preset or ID screens, or during Store or Loop playback processes.

  a. Select [Log Off], which is assigned to the function menu.
     The login screen is displayed. Subsequently, no operation other than login can be performed. Shutting down the system is also regarded as logging off. The next time the system starts up, the login screen will be displayed.

Reference information

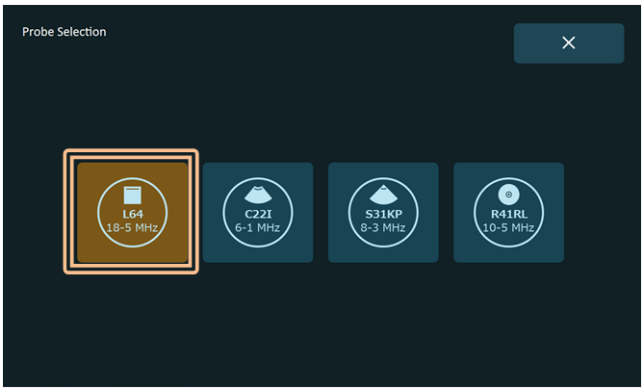
9.6.11 Menu-Function on page 235
9.5.2 Configuring user authentication on page 209

1.4 Switching probes

Select the probe for displaying ultrasonic images on the screen.

Procedure

- Press [Probe]key.
  The Probe selection screen opens on touch panel and the selected probe is highlighted in amber color.
- Select a probe.

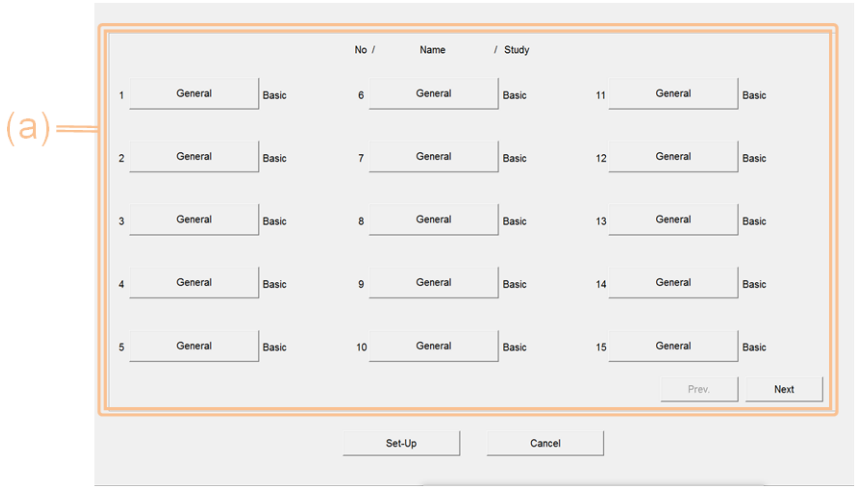


The display changes according to the probe selected.

1.5 Switching presets

Procedure

- Select [Preset] from the [Accessories] tab.
  The names of 15 presets are shown per page.



(a) Name list

- Select a preset from the Name list.
  If the desired preset is not displayed

Select [Next] or [Prev.] to change the page of the Name list.
The display changes to the preset selected.

1.6 Adjusting the ultrasound output power

CAUTION

Scan for the minimum length of time necessary for making a diagnosis, and at the lowest suitable output.
Fetal ultrasound scans must be conducted with particular care.
High output and prolonged exposure to ultrasonic waves can adversely affect the internal tissues of the patient.

Refer to the separate "Instructions for Use" for cautions about acoustic power.

Procedure

- Turn the [Acoustic Power] rotary encoder to adjust the acoustic power.
  The ultrasound output power is displayed on screen as a percentage of actual set transmitter voltage relative to what is regarded as safe maximum possible transmitter voltage under current scanning conditions.

1.6.1 Canceling Acoustic Output Restrictions

Prior confirmation

Use the preset ([Preset Set-Up Menu > Menu-Function])to assign [Power Limit Override] to the function menu.
When the system is used for fetal observation, the ultrasound output power is limited according Hitachi's regulations in compliance with the risk management requirements provided in IEC60601-2-37 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, Obstetrics, Obstetrics TV, Fetal Heart, and other applications that are edited based on the aforementioned applications.

Procedure

- Select [Power Limit Override] in the function menu.
  The following message is displayed.
  "Please keep acoustic output level as low as possible. Exposure to high levels of Ultrasound waves can be unsafe. Refer to ALARA recommendations in Operator's Manual."
- Select [OK].
  The transmission power restrictions are temporarily overridden.
  If [Cancel] is selected, the message closes without overriding the restrictions.

1.7 Entering comments

This function is for entering text in the ultrasonic image area.
Apart from entering text directly, you can save time when entering data by using the System Dictionary or the Learning Function.

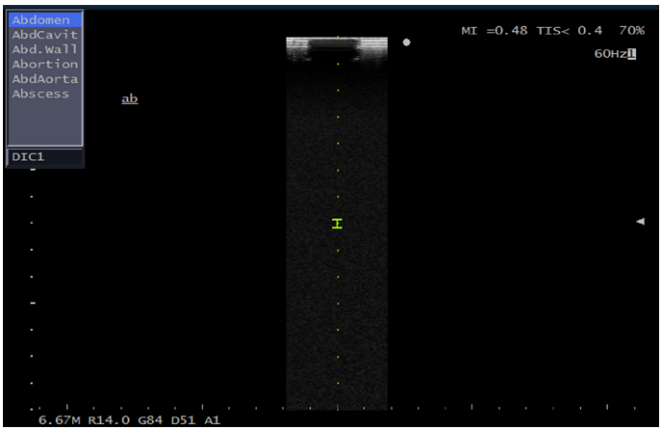
- With the System Dictionary, keywords that include the first letter input on the keyboard appear in the Annotation menu.
- With the learning function, keywords that have been selected previously are displayed more prominently in the menu.

1.7.1 Entering characters from the keyboard

Use the virtual keyboard (touch panel) or alphanumeric keyboard for entering text in the ultrasonic image area.

Procedure

1. Press [Pointer]key.
   Pointer appears on the ultrasonic image area and onscreen keyboard is displayed on the touch panel.
2. Use the trackball to move the pointer to the input location.
3. Enter characters from the onscreen keyboard.
   To use the Annotation menu
   Set System Dictionary ([Common Preset] > [Common 2] > [System Dictionary]) to [Use]. Once you enter text, keyword(s) appear in the Annotation menu. Use [Pointer] rotary encoder to select and highlight the keyword you wish to enter.



4. Press the [Enter] key or tap [Enter] on the onscreen keyboard.
   The input is confirmed.
   Entering Special Characters
   You can enter special characters using the input keys below.

Entering capitalized text	 Tap the [Caps] key.
Entering special characters	 Tap the [Shift] key.
Entering arrows	 Tap the [Ctrl] key.

Reference information

9.6.11 Menu-Function on page 235

1.7.2 Entering a pointer

Procedure

1. Press [Pointer]key.
   Pointer appears on the ultrasonic image area and onscreen keyboard is displayed on the touch panel.
2. Use the trackball to move the pointer to the input location.

Changing the direction of the pointer
Rotate [Pointer] rotary encoder.

3. Press the [Enter]key.

1.7.3 Changing text size

Prior confirmation

Assign [Character Size] to the function menu using Preset ([Preset Set-Up Menu > Menu-Function]) beforehand.

Procedure

1. Select a size from [Character Size] in the function menu.
   - "Normal" is the default size
   - "Large" is double the Normal size. (2X Horizontal by 2X Vertical)

   Subsequently, you can also enter via the size of selected text.

1.7.4 Moving text strings

Prior confirmation

Assign [Send] to any software button by using the preset ([Preset Set-Up Menu > Software Button]) beforehand

Procedure

1. The pointer cursor is displayed on the text string.
   Place the pointer on the text string.

2. Tap [Send] software button.
   The text string is highlighted.

3. Use the trackball to move the text string.
4. Tap the [Send] software button again.
   The position of the text string is confirmed.

1.7.5 Deleting text

Procedure

1. Set the pointer cursor to the right of the text to delete.
2. Tap the [B S] key on the onscreen keyboard.
   The text to the left of the pointer cursor is deleted.

1.7.6 Deleting text strings

Deleting Specific Text Strings

Procedure

1. Set the pointer on the text string to delete.
2. Tap the [DEL] key on the onscreen keyboard.
   The text string at the cursor is deleted.

Deleting All Texts On the Screen

1. There are 2 ways to delete text:
   - Tap [DEL] key on the onscreen keyboard
   - Cancel the freeze function (if Comment Auto Delete was "Erase" in Preset ([Preset Set-Up Menu > ID, Comment])

1.7.7 Registering Keywords in the Annotation Menu

This function allows you to register any desired keywords into Dictionaries 1 to 6.

Procedure

1. Press [Pointer]key.
2. Tap "Ctrl + D" on the onscreen Keyboard.
   The following dialog box is displayed.

a: Dictionary field
b: Key field
c: Word field

3. Select Key to register a keyword.
   a. Use the trackball to move to the Key field and press the [Enter] key to select the Dictionary number where words are to be registered
      The next available Dictionary number (DIC1 - DIC6) is displayed each time [Enter] is pressed.
4. Enter a keyword
   a. Use the trackball to move  to the Dictionary field and press the [Enter] key to select the Dictionary number where words are to be registered
   b. Enter up to 8 digits using the keyboard.
      The keyword you entered appears in the Key field and the same word appears in the Word field.

c. Press the [Enter]key.
The Key field is confirmed.

5. If the keyword differs from the text string on the screen (e.g. complete spelling), enter the text string in the Word field

   a. Use the trackball to move to the Word field, and then press the [Enter] key.

   b. Enter up to 54 digits using the keyboard.

   c. Press the [Enter]key.

   Setting Word for inputting characters
   Specify "Full Spelling" for Annotation Dictionary Select in the preset ([Preset Set-Up Menu] > [ID, Comment]).
   When the device is shipped, it is set for entering text strings via Key.

6. Use the trackball to select [OK].
   The keyword and the text strings are registered in the dictionary.

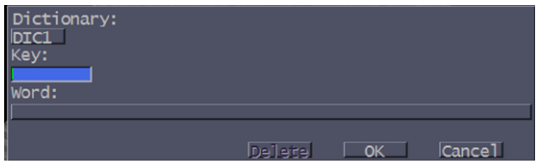
1.7.8 Deleting a registered keyword

Prior Confirmation

Use the preset ([Preset Set-Up Menu] > [Software Button]) to assign [Send] to a software button of your choice.

Procedure

1. Press [Pointer]key.
2. Tap "Ctrl + D" on the onscreen Keyboard.
   The registered Annotation menu and a dialog box open.



3. Select the key word to delete from the Annotation menu.

   a. Use [Pointer] rotary encoder to select and highlight the keyword you wish to delete.

   b. Tap [Send] software button.
   The keyword is displayed in the dialog box.

4. Press the [Enter]key.
5. Use the trackball to select [Delete] from the dialog box
   The keyword is deleted from the dictionary. The keyword is erased from the Annotation menu.
6. Use the trackball to select [OK].
   The dialog box closes.

1.8 Displaying body marks

Illustrations (body marks) can be used to display the examined body part or body posture during an examination.
Probe positions can be displayed on a body mark.

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.

  b. Select a body mark from the Body Mark Menu.

  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. Rotate the [Pointer] rotary encoder to rotate the orientation of the probe mark.

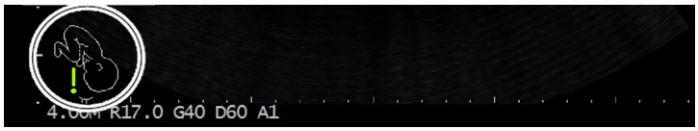
- Rotating the fetus mark.
  The fetus mark can be rotated to show conditions, such as the breech position.

  a. Display the body mark of the fetus.

     1. Select [Preset] from the [Accessories] tab.
     2. Select a preset from the Name list in which the application is [OBST].
     3. Press the [Body Mark]key.
     4. Select a fetus body mark from the Body Mark menu.

  b. Press the [Enter]key.

  c. Turn the [Pointer] rotary encoder to rotate the fetus mark.
     The fetus mark rotates each time rotary encoder is rotated.
     Switching probe mark and fetal mark rotation
     Press the [Enter] key to switch.



d. Press the [Enter]key.
Confirms the rotation of the fetus mark. Subsequently, rotating [Pointer] rotary encoder rotates the probe mark.
To rotate the fetus mark again, repeat from Step b
The twins mark is different from other marks.
Fig: When [Pointer] rotary encoder is rotated.

- Move the body mark display position.
Prior confirmation
Use the preset ([Preset Set-Up Menu > Menu-Function])to assign Menu-Function/ >[Body Mark Location] and [Body Mark Reset] to the function menu.

a. Select [Body Mark Location] in the function menu.
A square frame is displayed over the body mark.

b. Use the trackball to move the square frame.

c. Press the [Enter]key.
The body mark moves.

d. Select [Body Mark Location] again and confirm the position.
To return to the position when the product was shipped

1. Select [Body Mark Location] in the function menu.
A square frame is displayed over the body mark.
2. Select [Body Mark Reset] in the function menu.
3. Select [Body Mark Location] again and confirm the position.

- Hide the body marks.

a. Press the [Body Mark]key.
The body marks displayed on the screen are hidden.

Reference information

For the body mark allocation methods, see below.
9.6.9 Body Mark on page 232

2

Entering patient information

2.1 Before starting an examination
2.2 Screens for entering patient data
2.3 Entering patient data

2.1 Before starting an examination

Enter patient data (ID number, name, etc.) and display it on the screen. The entered data can be used for displaying a report. Patient data can be entered via the keyboard.
Patient data can be entered in the following 4 ways.

- Directly on the New Patient screen
- Directly on the ID input screen (Details)
- By searching the database stored on the system
- By searching for patient data (Worklist) obtained from the HIS

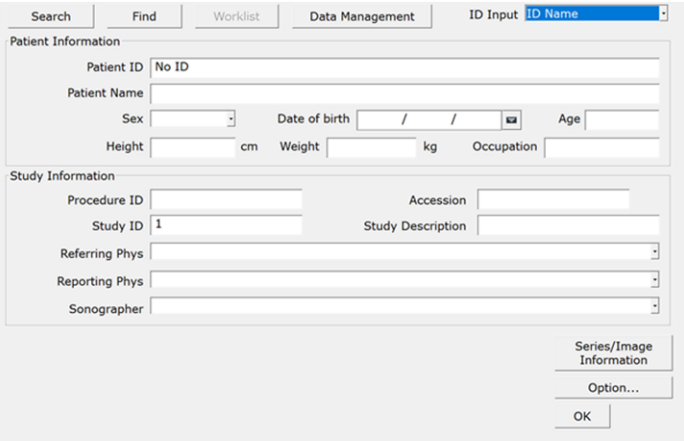
NOTE: The optional DICOM networking software (SOP-AR50-10) is required to connect to Worklist, MPPS servers, or DICOM SR servers.

Reference information

7.1 Patient Data Management screen on page 142

2.2 Screens for entering patient data

ID Input Screen (Details)



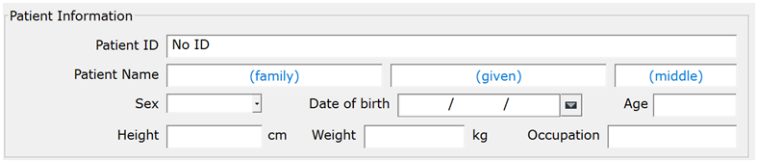
This screen has the following buttons/switches.

Button/Switch	Description
Search	Switches to the Search screen for searching patient information from the patient database in the system.
Find	Switches to the Find screen for loading patient information from the HIS (Hospital Information System) into the system.
Worklist	Displays the Worklist loaded from the HIS.
Data Management	Displays the Data Management screen to manage patient information.
ID Input	Switches the format of the ID input screen (Details) according to the operation. There are 6 different ID input formats.
Series/Image Information	Switches to the screen for entering attributes related to images.

Button/Switch	Description
Option...	Switches to the ID Screen Option screen. Sets the options for the Worklist or the ID input screen (Details).
OK	Saves the input and returns to the examination screen.
Cancel	(Only displayed when the [ID] is selected from the [Accessories] tab in the function menu.) Discards input and returns to the examination screen.

Patient Information Items

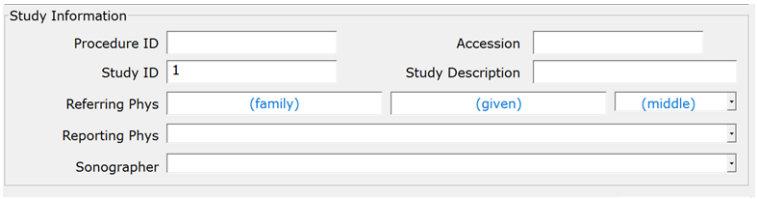
The following items can be entered in the Patient Information fields. These items are the same regardless of the ID Input format.
Defaults can be configured using presets ([Preset Set-Up Menu > ID, Comment]).



Item	Description
Patient ID	Enter the patient ID. If the ID is not entered, an ID in the format X "date"-"time" will be assigned automatically. For example, if no ID was entered at 9:25:47 on November 20, 2015, then the ID "x151120-092547" would be assigned.
Patient Name	Enter the name of the patient. If there are 3 entry fields, enter the name of the patient in the following order: Familyname, Given name and Middle name. You can enter a total of up to 64 characters.
Sex	From the drop-down list, select one of the following values: M(Male), F(Female), Other, or blank.
Date of Birth	Displayed using the Western calendar. Age is calculated after the DOB is entered.
Age	Calculated from the current date and the date of birth, and displayed. Age after birth is indicated as follows: up to 6 days, as "D"; up to 29 days, as "W"; up to 364 days, as "M"; thereafter as "Y". If it is input directly, the entered Date of birth is erased.
Height	Input in units of either cm, m, or feet/inch. You can set the unit by using presets (Unit (Height) in [Common Preset > Common1]).
Weight	Input in units of kg or ld/oz. You can set the unit by using presets (Unit (Weight) in [Common Preset] > [Common1]).
Occupation	Enter the occupation of the patient.

Study Information

Study Information consists of the following items, which are separate from the ID input format.

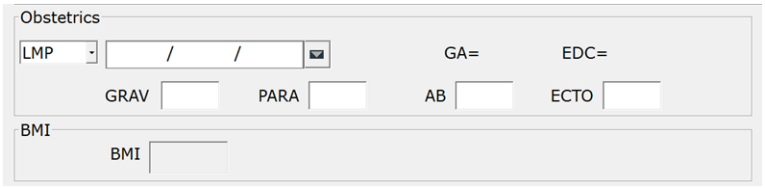


Item	Options	Description
Procedure ID		Displays the examination ID obtained from the Worklist.
Study ID		Displays the number of examinations that a patient received with the identical ID number.
Accession	(16 digits)	Displays the accession number.
Study Description		Displays the examination item(s) obtained from the Worklist.
Referring Phys	(Up to 64 digits)	Name of the physician who ordered the examination. Either select from the drop-down list or enter via the keyboard. If there are 3 entry fields, enter in the order of Family, Given, Middle names. You can enter a total of up to 64 characters.
Reporting Phys	(Up to 64 digits)	Name of the physician responsible for diagnosis. Either select from the drop-down list or enter via the keyboard.
Sonographer	(Up to 64 digits)	Name of the sonographer in charge of the exam. Either select from the drop-down list or enter via the keyboard.

Additional items can be added by selecting the ID Input field.

If "ID Obstetrics" Is Selected in the ID Input Field

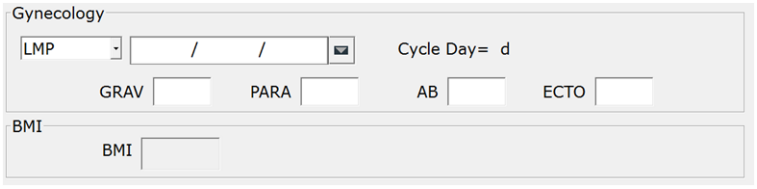
If Female or blank is selected for sex, the following items are added.



Item	Options	Description
GA EDC	LMP	Based on the last date of menstrual period, the gestational week and the expected delivery date are calculated. GA = (Today's date - LMP)/7 EDC = 280 days + LMP
	BBT	The gestational week and the expected delivery date are calculated based on the estimated ovulation date. GA = (Today's date - BBT +14 days)/7 EDC = (280 days - 14 days) + BBT
	EGA	The gestational week and the expected delivery date are calculated based on the past examination date and the gestational week at that time. GA = (Today's date - Past exam date)/7 + EGA EDC = Past exam date + (280 days - EGA)
	EDC	The gestational week is calculated based on the expected delivery date. GA = (280 days - (EDC- Today's date))/7
	GA	Based on the gestational week, the expected delivery date is calculated. EDC = Today's date + (280 days - GA x 7)
GRAV	0 to 99 (integer)	Enter the number of pregnancies from the keyboard.
PARA	0 to 99 (integer)	Enter the number of births from the keyboard.
AB	0 to 99 (integer)	Enter the number of abortions or miscarriages from the keyboard.
ECTO	0 to 99 (integer)	Enter the number of ectopic pregnancies from the keyboard.
BMI	(Auto calculation)	

If "ID Gynecology" Is Selected in the ID Input Field

If Female or blank is selected for sex, the following items are added.



Item	Options	Description
Cycle Day	LMP	The menstrual cycle is calculated based on menstruation from the last month.
	BBT	The menstrual cycle is calculated based on the estimated ovulation date.
GRAV	0 to 99 (integer)	Enter the number of pregnancies from the keyboard.
PARA	0 to 99 (integer)	Enter the number of births from the keyboard.
AB	0 to 99 (integer)	Enter the number of abortions or miscarriages from the keyboard.
ECTO	0 to 99 (integer)	Enter the number of ectopic pregnancies from the keyboard.

Item	Options	Description
BMI	(Auto calculation)	

If "ID Urology" Is Selected in the ID Input Field

If Male or blank is selected for sex, the following items are added.

Item	Options	Description
Serum PSA	(Direct entry)	Enter the value of serum PSA (ng/ml) from the keyboard.
BMI	(Auto calculation)	

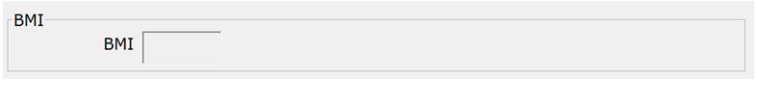
If "ID BSA" Is Selected in the ID Input Field

Select the calculation formula from the drop-down list or enter a value with the keyboard.

Item	Options	Description
BSA	DuBois	Calculates the body surface area using the DuBois formula. $BSA = 0.007184 \times H^{0.725} \times W^{0.425}$ BSA: m^2, H: cm, W: kg
	Boyd	Calculates the body surface area using the Boyd formula. $BSA = 0.0003207 \times H^{0.3} \times W^{(0.7285-0.0188 \times \log W)}$ BSA: m^2, H: cm, W: g
	Shintani	Calculates the body surface area using the Shintani formula. $BSA = 0.007358 \times H^{0.725} \times W^{0.425}$ BSA: m^2, H: cm, W: kg
	Key in	Enters the body surface area (m^2) using the keyboard.
BMI	(Auto calculation)	

If "ID BMI" Is Selected in the ID Input Field

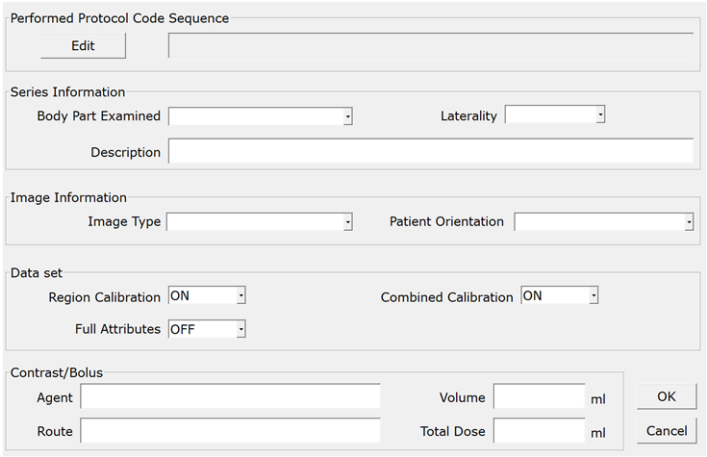
The following items are added:



Item	Options	Description
BMI	(Auto calculation)	

Series/Image Information

These items appear when you select [Series/Image Information] on the ID input screen (Details).



Item	Options	Description
Performed Protocol Code Sequence		Use this function when reporting the examination content to the MPPS server or to the DICOM image data.
Body Part Examined		Select the body part to be examined from the list.
Laterality		Enter the side (left or right) of the body part to be examined.
Description		Enter a description of the image.
Image Type		Select the image type from the drop-down list.
Patient Orientation	Left Right Feet Head Anterior Posterior	Enter the anatomical orientation of a patient. Indicate 2 orientations of the patient, one viewed from the side and the other viewed from above, by "Anterior", "Posterior", "Head", "Feet", "Left", "Right", inserting a backslash in between.
Region Calibration	ON	Select this to include measurement information for each image in the image information.
	OFF	Select this to exclude measurement information for each image from the image information.
Combined Calibration	ON	Select this to include brightness information in Region Calibration.
	OFF	Select this to exclude brightness information from Region Calibration.
Full Attributes	ON	Select this to include all the information when recording and/or transferring images.
	OFF	Select this to partially restrict information when recording and/or transferring images.
Agent		Enter the name of contrast agent.
Route		Enter the route of contrast agent.
Volume		Enter the applied dose of the contrast agent.

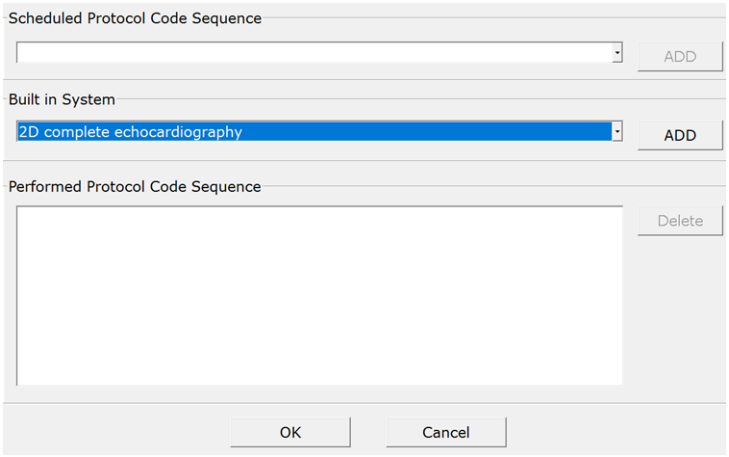
Item	Options	Description
Total Dose		Enter the total dose of the effective components of the contrast agent.

Performed Protocol Code Sequence

Use this function when reporting the examination content to the MPPS server or to the DICOM image data.

Procedure

1. Select [Series/Image Information] on the ID input screen (Details).
2. Select [Edit] from Performed Protocol Code Sequence.
   The following screen is displayed.



   - Scheduled Protocol Code Sequence
     Displays the list of required examination items that are registered on the Worklist. The same items are also input on the Performed Protocol Code Sequence.
   - Built in System
     The list of the examination items that are registered in the system by default.
   - Performed Protocol Code Sequence
     Displays the examination information that is going to be sent to the MPPS server or to be attached to the DICOM image data. If the required examination items are registered on the Worklist, the information will also appear on this list.

3. Edit the content of the examination.
   Adding an examination item to Scheduled Protocol Code Sequence

   a. Select an examination item from the drop-down list of Scheduled Protocol Code Sequence.
   b. Select [ADD].

   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].
      The selected method is now added to Performed Protocol Code Sequence.

   Deleting an examination item from Performed Protocol Code Sequence

a. Select the examination item(s) you wish to delete from the Performed Protocol Code Sequence.

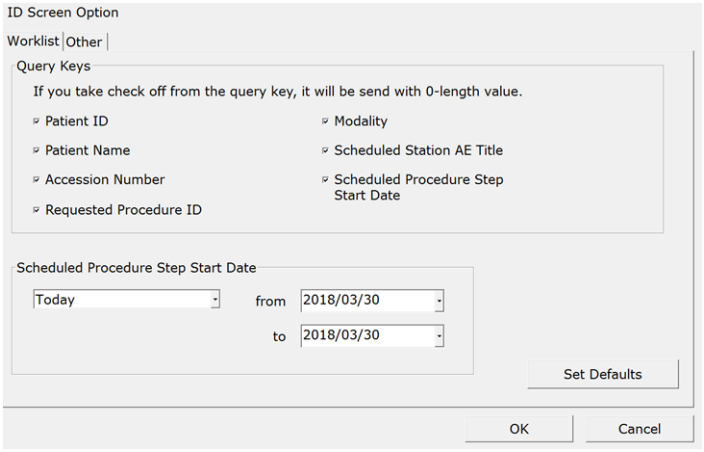
b. Select [Delete].

4. Select the [OK].
   The input is confirmed and the screen returns to Series/Image Information.

Setting Advanced Functions: Option

Sets advanced functions that are necessary for ID entry.
On the ID input screen (Details) , select [Option...] to bring up the ID Screen Options screen.
There are 2 tabs on the screen: Worklist and Other.

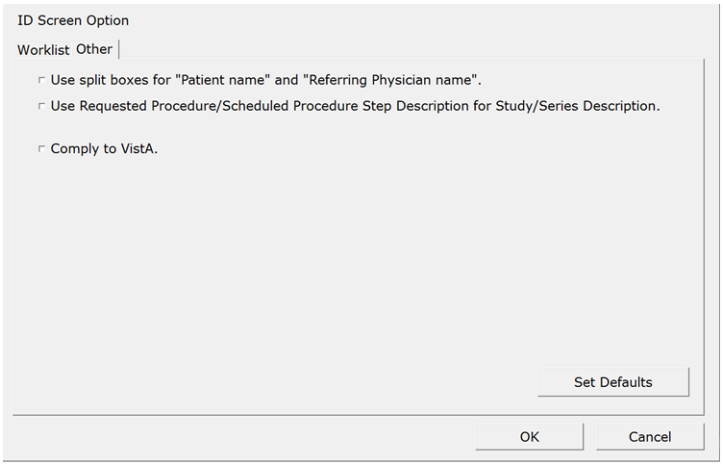
Worklist tab



- QueryKeys
  Select the check boxes next to the appropriate items under Query Keys. Search for a Worklist by using the checked items.
- Scheduled Procedure Step Start Date
  If this is checked, select the exam start date to search for from the following.
  - Today
  - Today +/- 1 day: Same, previous and next day
  - This week: (from Sunday to Saturday that includes today)
  - Specified date: The date in the from field to the date in the to field

Other tab

This tab allows you to set more options for the ID input screen (Details).



1. Use split boxes for "Patient name" and "Referring Physician name".
   - ☐ Sets the respective input field for Patient Name and Referring Physician to one line each.
   - ☑ The input fields for Patient Name and Referring Physician are each divided into 3 fields, namely fields for the Family name, for the Given name, and for the Middle name.
2. Use Requested Procedure/Scheduled Procedure Step Description for Study/Series Description.
   - ☐ The fields for Study Description and Series Description are always blank.
   - ☑ Enters the Requested Procedure Description and Scheduled Procedure Step Description obtained from the Worklist into the Study Description and Series Description.
     The Worklist information is presented as follows:

Data from the Worklist	ID Input Screen (Details) Study Description	ID Input Screen (Details) Series Description
Requested Procedure Description Scheduled Procedure Step Description	Requested Procedure Description	Scheduled Procedure Step Description
Scheduled Procedure Step Description only	Scheduled Procedure Step Description	Scheduled Procedure Step Description
Requested Procedure Description only	Requested Procedure Description	Requested Procedure Description

3. Comply to VistA
   - ☐ Not compliant with VistA (Veterans Health Information Systems and Technology Architecture).
   - ☑ Compliant with VistA (Veterans Health Information Systems and Technology Architecture).All examination order results from the Worklist server are displayed on the Worklist display.
4. [Set Defaults]

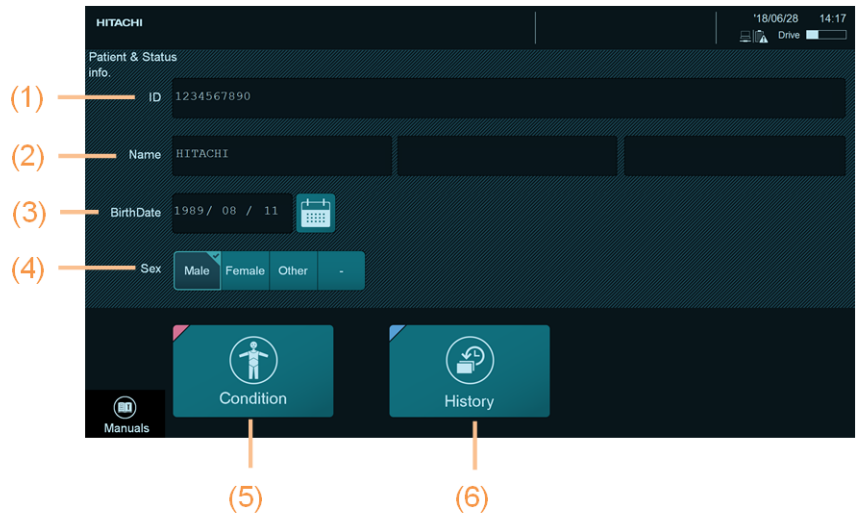
All items set under ID Screen Option are restored to their default values.

2.3 Entering patient data

2.3.1 Entering patient information from the home screen

Procedure

1. On the home screen, select [New Patient].
   The ID input screen is displayed.
   The onscreen keyboard is displayed on the touch panel.



(1) ID field (2) Name field (3) BirthDate field (4) Sex field
(5) Condition field (6) History field

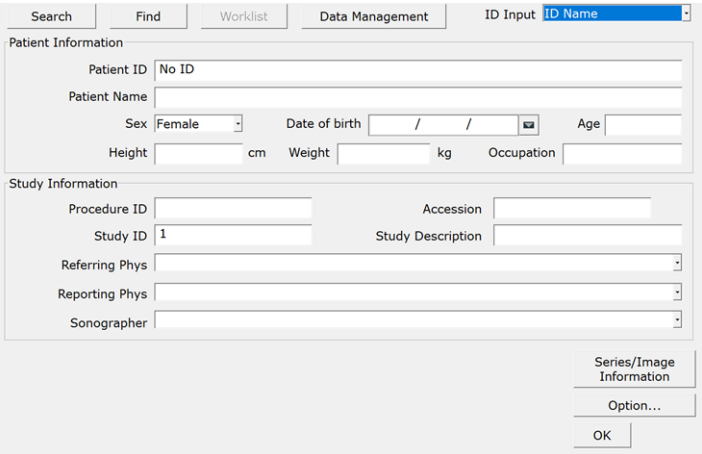
2. Enter patient information.
   a. Select the ID field.
   b. Enter the patient ID.
      NOTE: The patient ID is necessary when saving images.
   c. Select the Name field and enter the name of the patient.
   d. Select the BirthDate field and enter the birth date of the patient.
      You can also select it from the calendar.
   e. Select the gender of the patient in the Sex field.

2.3.2 Entering patient information on the ID input screen (Details)

NOTE: The HOME button is not available when the ID Input screen is displayed.

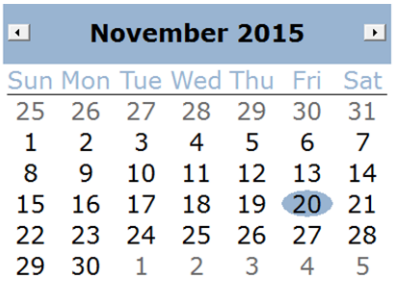
Procedure

1. Press [New Patient]key.
   The IDInput screen (Details) opens.
   The onscreen keyboard is displayed on the touch panel.

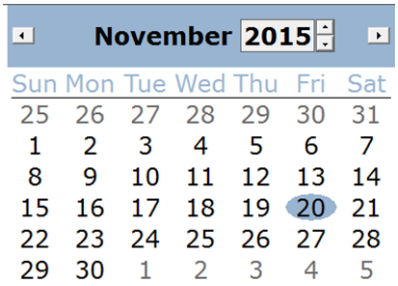


2. Select the item appropriate to the application from the drop-down list of the ID Input field.
   - ID Name: Enter ID, name, age and sex only
   - ID Obstetrics: Displays obstetrics items in addition to those from ID Name
   - ID Gynecology: Displays gynecology items in addition to those from ID Name
   - ID BSA: Displays BSA in addition to ID Name items
   - ID Urology: Displays urology items in addition to those from ID Name
   - ID BMI: Displays BMI in addition to ID Name items
3. Enter the patient ID in the Patient ID field.
   - Select the Patient ID field.
   - Use the keyboard to enter the patient ID.
   - Tap either the [Tab] or the [Enter] key on onscreen keyboard.

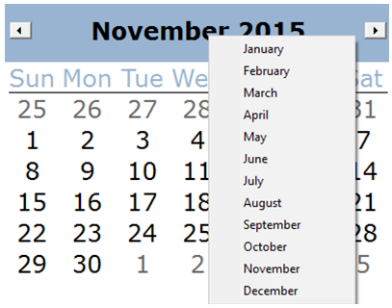
   If the ID has been previously registered, the patient information from the previous visit will be displayed.
4. Enter the patient name in alphabetic characters in the Patient Name field.
   - Select the Patient Name field.
   - Use the keyboard to enter the patient name in alphabetic characters, in the sequence of family name, 1 space, and given name. You can use up to 64 characters.
     When there are 3 input fields:
     Enter the family, given and middle names in order, using a total of 64 characters.
   - Tap either the [Tab] or the [Enter] key.
5. Select sex in the Sex field.
6. Either select or enter the day for the Date of birth.
   To enter them directly
   When using the Western calendar, enter a four-digit year. For example: "2011/11/20".
   To select the date
   Select [▼] on the right of the Data of birth field to display the calendar.



Display the calendar for the birth year and month and then select the birth date.Once the Data of birth fields are filled, the Age field is displayed in the form "D" (day), "W" (week), "M" (month), "Y" (year).
Select year display to change to the year.



Select month display to select the month.



7. Enter information for other fields in the same manner.
8. Press the [OK] button if the input is completed.
   The scanning screen reappears. Out of the data entered, Patient Name and Patient ID are displayed on the screen.
   If the ID is not entered, an ID in the format x "date" - "time" will be assigned automatically. For example, if the time is 9:25:47 on November 20, 2017, then the ID "x171120-092547" is assigned.

2.3.3 Obtaining patient data from the HIS

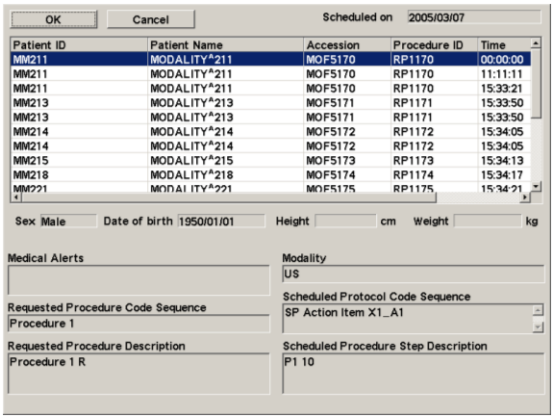
You can load a list of patient information from HIS (Hospital Information System) to the system to display it.

Prior confirmation

In order to load patient information from the HIS, the system has to be configured for network connections with the HIS server via presets ([Common Preset > DICOM Store, Send]). For more details, contact your system administrator (IT personnel) for the hospital network.

Procedure

1. Select [Find] on the ID Input screen (Details).
   The system reads the latest patient data from the HIS and displays it in the Worklist.



   The loaded patient information is available throughout that day.
   However, select [Find] again if the date changed or if latest information became available.

Searching the Worklist

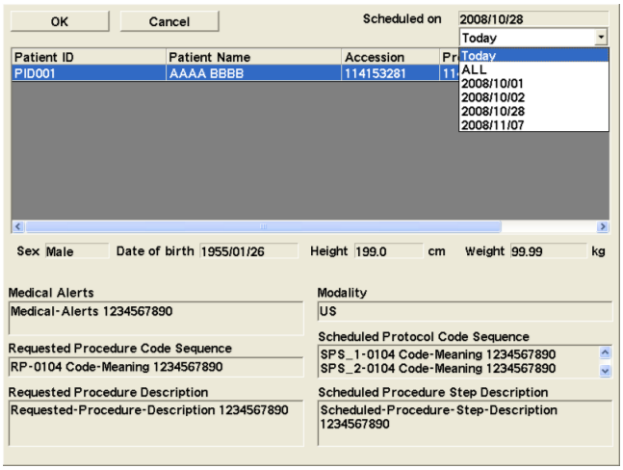
Searches for patient information from the list loaded from the HIS (Hospital Information System) to the system.

Prior confirmation

Prior to searching the Worklist, you first have to obtain patient data from the HIS.You cannot search the Worklist unless you have loaded patient data from the HIS.

Procedure

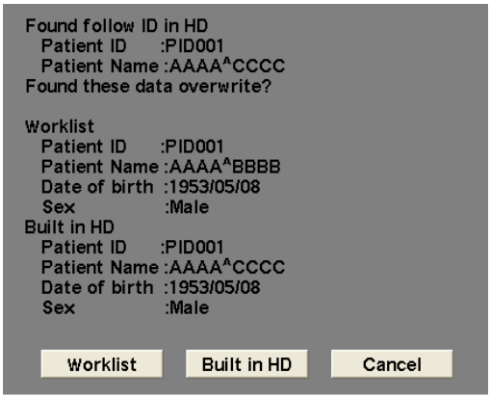
1. Select the [Worklist] at the top left of the ID input screen (Details).
   Worklist is displayed. The patient information on the system is displayed.
2. Search the patient information.
   Searching by examination date
   Select the examination date in the Scheduled on drop-down list to display a list of patient information for that examination date.



   Sorting by Patient ID or Patient Name

Select either the Patient ID or the Patient Name tab.

3. Select a patient name.
4. Select [OK].
   The system retrieves information from the Worklist.
   At that time, the information retrieved from the Worklist is compared with the latest patient information on the system for the same ID.If the Patient ID is the same but the Patient Name, Sex, or Date of birth differ, the following dialog message is displayed.



   To use patient information stored in the system, select [Built in HD].To use the Worklist data, select [Worklist].
   If other data differs, values are updated according to the following rules.

Data from the Worklist	Data used as Patient Data
Occupation, LMP, Height, Weight, BSA, EDC, BBT, GA, EGA	The system automatically updates its data to the Worklist data. If the values retrieved from the Worklist include none of these, the values from the last patient data for the same ID is used without updating.
GRAV, PARA, AB, ECTO, PSA	Uses the last examination data for the patient data with the same ID.
Study Description, Series Description, Referring Phys	Uses the Worklist data if the patient information was retrieved from the Worklist

   Once the examination is started, the following items cannot be changed:
   Patient ID, Patient Name, Sex, Date of birth, Age, Procedure ID, Accession, Study ID, Study Description, Referring Phys, Reporting Phys, Sonographer, Body Part Examined, Laterality, Description

   - To change patient information after an examination is started:
     Press [New Patient] Key and select the patient data again from the Worklist.
   - If the date changed or if latest information becomes available:
     Select [Find] again.

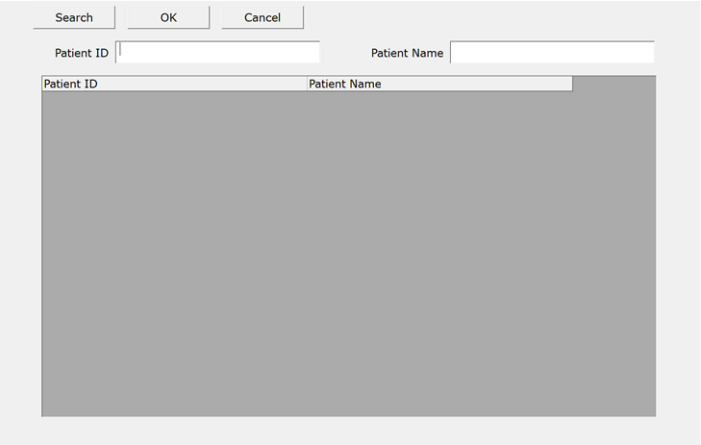
2.3.4 Searching for patient information stored in the system

Searches for patient information using the patient database stored on the system.

Procedure

1. Select [Search] on the ID input screen (Details).

The Search screen opens. All the patient information in the system is displayed.



2. Enter a search keyword in the Patient ID or Patient Name field.
   Fuzzy search
   Enter "*" in front of or after a keyword to make a wildcard search.
   Search all
   All the patient information in the system is displayed if no keyword is entered in the Patient ID or Patient Name fields.
3. Select [Search].
   Patient data that matches the search keyword is displayed in a list on the screen.
4. Select the desired patient information.
   The selected patient information is highlighted in blue.
5. Select [OK].
   Goes back to the ID input screen (Details). The selected patient data is displayed on the ID Input screen (Details).

3

Displaying images

3.1 B mode
3.2 M mode
3.3 Color Doppler mode
3.4 D mode
3.5 Adjusting images
3.6 Adaptive Image Processing (AIP)
3.7 Dynamic Slow Motion Display (D.S.D.)
3.8 Displaying the puncture guide lines
3.9 Needle Emphasis
3.10 Physiological Signals
3.11 Search

3.1 B mode

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

3.1.1 Single Screen Display: 1B

Procedure

1. Press [B] Mode key.
   It displays a real-time B mode image.
2. Apply the probe to the area being examined.
3. Adjust as needed to obtain a satisfactory image.
   Example of image adjustment functions
   - Brightness: Adjust [Gain] or [TGC].
   - Contrast and other image processing: Adjust on the Function menu.
   - Display depth: Adjust [Zoom/Depth] rotary encoder and optimize.
   - Frequency: Switch with [Frequency (B/M)] on the function menu and adjust.

   To make adjustments for more than one image at a time
   Set using [IP Select (B)] on the function menu.
   If the adjustment function you wish to use is not on the Function menu
   Assign the adjustment function to the function menu using Preset ([Preset Set-Up Menu > Menu- Function]).
4. Press [Freeze] key when you have captured a good image to produce a still image.

3.1.2 Dual-Screen Display: 2B

Dual mode images are displayed on the left and right sides of the screen. Press [Select] key and specify the images.
Timing of the split screen can be set with Cine Memory Division in the preset ([Preset Set-Up Menu > DISP-B, M]).

- When Cine Memory Division is "OFF" : The2B mode image can be displayed in real time and 1B mode image captured in the cine memory can be displayed in the 2B mode while freeze is in effect (2B Mapping).
- When "Cine Memory Division" is set as "2" or "4": The Dual mode can be displayed in real time.

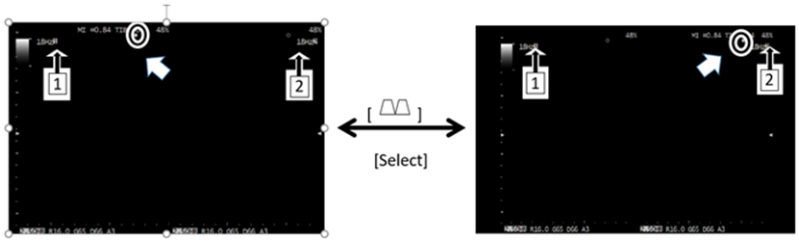
Procedure

- Displaying a Dual screen display.
  - Press [Dual] key to display the dual screen.
    The B mode screen is displayed on the left of the screen.
- Switch the screens.

On the 2B mode screen, you can switch between the real time image and the frozen image, or display (request) the active screen in the 1B mode.

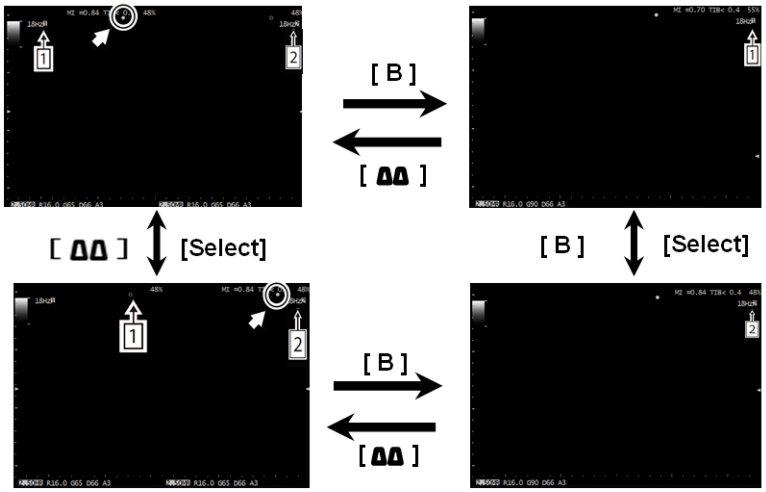
- **Switching the active screen**
  Procedure

  1. Press [Select] or [Dual] key.
     The image on the left freezes, and the image on the right is displayed in real time.
  2. Press [Select] or [Dual] key.
     The image on the right freezes, and the image on the left is displayed in real time. After that, every time you press either [Select] or [Dual] key, it switches which image on the left/right of the screen is displayed as still or in real time.



- **Making a request**
  Procedure

  1. Press [Freeze] key and freeze the image.
  2. Press [Select] or [Dual] key.
     The active mark  switches.
  3. Press [B] Mode key.
     The active screen is displayed in 1B mode.
  4. Press [B] mode or [Select] key.
     It switches to the other image.



3.1.3 Four-screen Display: 4B

B mode images are displayed on the four-screen display.

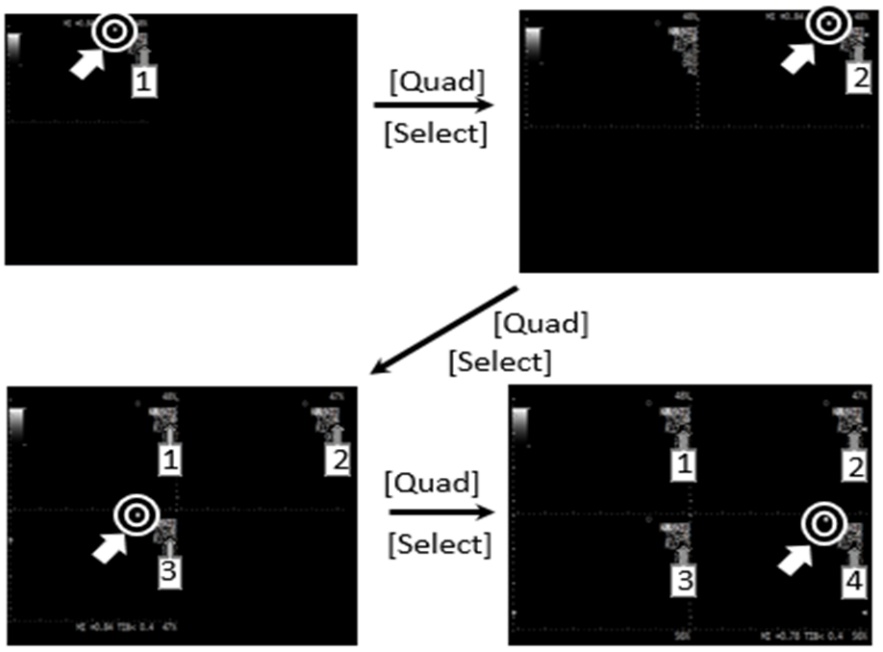
Prior confirmation

The following settings should be made using Preset ([Preset Set-Up Menu]).

- Set Cine Memory Division for [DISP-B, M] to "4".
- Assign [Active (B1)] to [Active (B4)] to the function menu using Preset ([Preset Set-Up Menu > Menu-Function]).
- Assign [Quad] to Software Button by using the preset ([Preset Set-Up Menu > Software Button]).

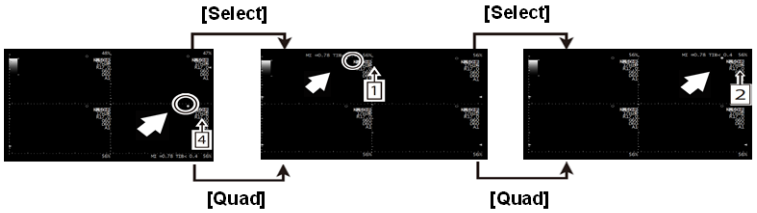
Procedure

- Displaying a Quad screen display.
  - Tap the [Quad] software button.
    The screen is divided into 4 areas. The B mode image on the upper left is displayed in real time.
  - Press the [Select] key or tap the [Quad] software button.
    The image on the upper left (1) is frozen, and a real-time image is displayed on the upper right (2).
    After that, every time either the [Select] key is pressed or the [Quad] software button is tapped, the real time image displays switches in order to the lower left (3), the lower right (4), and the upper left (1) screens.

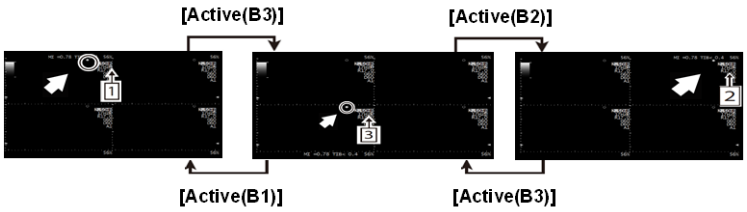


- Switching the Active Screen.
  While on the 4B mode screen, you can toggle between the real-time image and the frozen images.
  Procedure
  - Toggle the active screen in order.
    Pressing the [Select] key or tapping the [Quad] software button freezes the screen that had been active and shifts the active screen to the next screen in numeric order. After that, each time [Select] key is pressed or [Quad] button is tapped, it

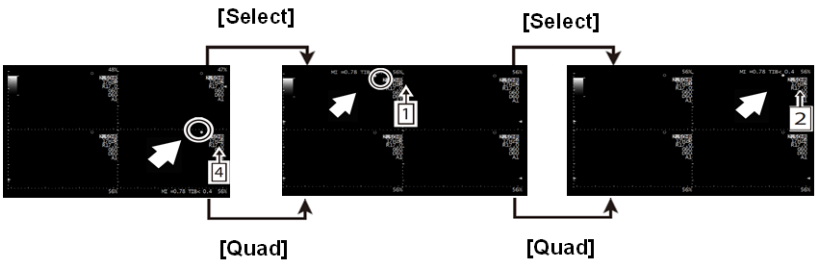
switches the active image and active mark  in the repeating order of upper left (1), upper right (2), lower left (3), lower right (4), upper left (1), and so on



◦ Select the screen and switch the screen.
The active screen can be switched by selecting [Active (B1)] through [Active (B4)] from the function menu. The selected screen is displayed in real time, and the active mark  switches.



◦ Switch the active screen after a request.
When on the request screen, pressing the [Select] key or tapping the [Quad] software button switches the active screen in order. The active screen can also be switched by selecting [Active (B1)] through [Active (B4)] from the function menu on the request screen.



• **Making a request**
Displays the active screen in 4B display in the one screen mode.
Procedure

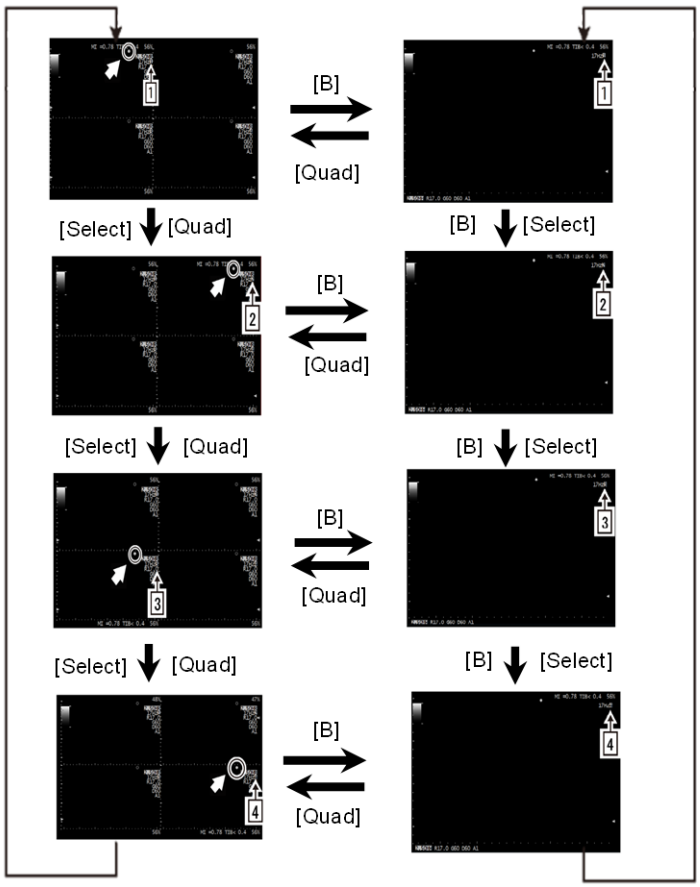
◦ Switch the requested screen to active mode.

  • Press the [Select] key or tapping the [Quad] software button to select the requested screen.

  • Select from [Active (B1)] - [Active (B4)] from the function menu.

◦ Press [B] Mode key.

Press [B] mode or [Select] key to switch the active screen. After that, each time [B] mode or [Select] key is pressed, it switches in the order of upper left (1), upper right (2), lower left (3), lower right (4), upper left (1). It can also be switched by selecting [Active (B1)] to [Active (B4)] from the Function menu.



3.2 M mode

The M mode is a mode which fixes an ultrasound beam in a straight line on a B mode image in order to display and observe the movement over time of an ultrasound wave reflector that is on the straight line.

In the M mode, a scale is displayed in the depth direction at 1 cm (when display depth is 6 cm or less, 0.5 cm is used, at 30 cm or greater, 5 cm) over the course of time of 0.5 sec. When in real time, the scale mark is not displayed on the M mode image.

Fig.1: B/M mode (frozen) display example

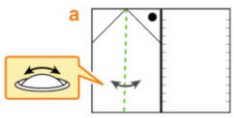
3.2.1 Displaying M mode images

B/M mode

The B/M mode simultaneously displays a B mode image and a M mode image.The B/M mode is a mode which fixes an ultrasound beam in a straight line on a B mode image in order to display and observe the movement over time of an ultrasound wave reflector that is on the straight line.

Procedure

1. Press [M]key.
   Bmode 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.
   To display an M mode image on a single screen
   Select [Full M/D].
   To display an M mode image in B/M mode from a single-screen M mode display
   - Press the [M] mode key.
   - Select the [Full M/D] button.
3. Adjust the gain or contrast.
4. Press the [Freeze]key.
   Both the B mode and M mode images freeze.

(1) Switching the active screen in B/M mode

- To switch the active image in the B/M mode
  Procedure

  a. Press [Select]key.
  The M mode image becomes active and the B mode image freezes.

  b. Press the [Select]key.
  The B mode image becomes active and the M mode image freezes.
  Subsequently, each time you press [Select] key, you can switch the active image between the B mode and the M mode.

- To request from the B/M mode (single screen display)
  Procedure

  a. Press [Freeze]key.

  b. Select the image you want to request.

    - To request the B mode image: Press the [B] mode key.
    - To request the M mode image: Select the [Full M/D] button.

- To return from the single screen display (request) mode to the B/M simultaneous display mode
  Procedure

  a. Press the [M] mode key.

(2) Displaying the M mode Image in Enlarged Form: M Window

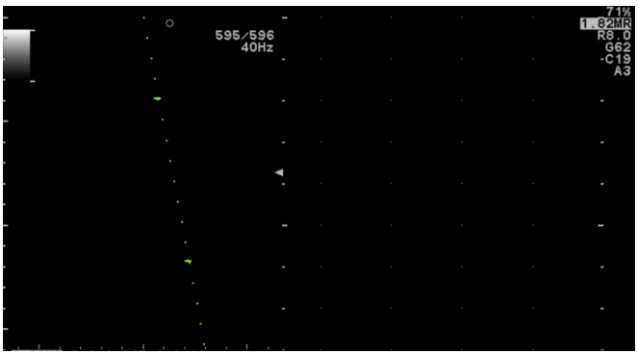
The M mode image is displayed in enlarged form in the B/M mode.

Procedure

1. The B/M mode is engaged.
2. Select [Cursor/B.L.S] button.
3. Set the display range in the M mode.

   ◦ Set the size of the display range.
   Rotating [Pointer] rotary encoder counter clockwise direction decreases the display range (B mode) and enlarges the display of the M mode image.
   Rotating [Pointer] rotary encoder clockwise direction increases the display range.
   If taken to the maximum size, the original B/M image will be displayed.

   ◦ Set the position of the display range.
   Roll the trackball up and down to move the display range up and down on the cursor.



M WINDOW display example: The area enclosed by a dotted line is the display range in the M mode.

(3) Adjusting gain

Adjusts the gain in M mode.

Procedure

1. Turn the multi-gain rotary encoder to adjust the M mode gain.
2. ◦ Turn the multi-gain rotary encoder to the right.
   Image sensitivity increases.
   ◦ Turn the multi-gain rotary encoder to the left.
   Image sensitivity decreases.

3.2.2 FAM (Free Angular M) mode

Creates M-mode images from the information obtained from the M-mode cursor (FAM cursor) that has been drawn freely over a B mode image.
You can create an M mode image even on a B mode image saved by the Cine memory. The images can only be displayed in black and white.
Note: The optional software SOP-AR50-5 is required.

(1) Displaying FAM mode images

Displays the FAM cursor in a 1B mode image.

Prior confirmation

The following settings should be made using Preset ([Preset Set-Up Menu]).

- Assign [FAM] to Software Button by using preset ([Preset Set-Up Menu > Software Button]).

Procedure

- To switch from real time 1B mode or B/M mode to FAM mode
  To switch from B/M mode to FAM mode

  a. Select [FAM] button.
     Free angular M mode cursors are displayed.

To switch from real time 1B mode to FAM mode

a. Select the [FAM] button.
   Free angular M mode cursors are displayed.

b. Press the [M] key.
   The FAM mode image is displayed.

- To switch from 1B mode (freeze) to FAM mode
  Under the preset (Common Preset > Common1), set Frequency Information to "Receive".

  a. Select [FAM] button.
     Free angular M mode cursors are displayed.

  b. Press the [M] key.
     The FAM mode image is displayed.

- To switch the image displayed using the Review function to FAM mode
  Under the preset (Common Preset > Common1), set Frequency Information to "Receive".
  NOTE: Only Line images that are saved on the internal HDD can be switched to FAM mode using the Review function.

  a. Switch the 1B mode image in Review to full-screen display.

  b. Select [Playback] from the [Full Screen] tab in the function menu to switch to "Stop".

  c. Select [FAM] button.
     Free angular M mode cursors are displayed.

  d. Press the [M] key.
     The FAM mode image is displayed.

Reference information

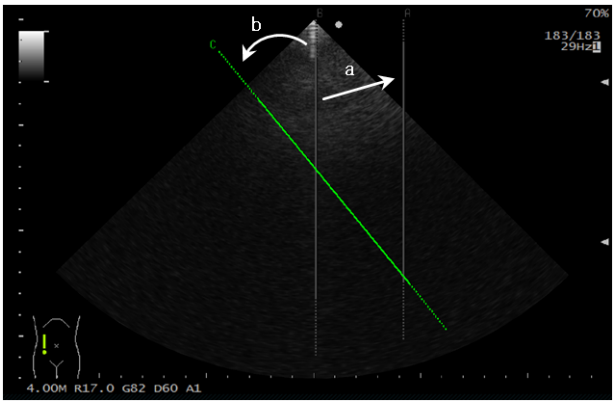
9.6.11 Menu-Function on page 235
9.6.10 Software Button on page 234
9.6.12 Custom SW on page 236

(2) Setting Cursors to the Desired Positions

Up to 3 FAM cursors can be set. FAM mode images that correspond to the FAM cursors you set are displayed in the B/M mode display.

Procedure

1. The FAM mode is engaged.
   FAM cursor A is displayed in the center of the B mode image.
2. Set the position of FAM cursor A.



Trackball: Move the cursor up, down, left or right (a in figure at left).
[Pointer] rotary encoder: Rotate the cursor (b in figure at left).

3. Set the 2nd and 3rd cursors.

   a. Press [Enter] key to display the 2nd cursor B.

   b. Set the position of cursor B in the same way as cursor A .

   c. To display the 3rd cursor C , press [Enter] key.

   d. Set the position of cursor C in the same way as cursor A .
   The number of FAM cursors
   Set the number of M cursor as 2 or 3 by selecting [FAM Cursor Number] on the function menu.
   To modify a cursor position
   By pressing [Enter] key, you can toggle which cursor is active in the order of A, B, C, A and so on.
   To eliminate the active FAM cursor
   Select [Active FAM disp. off] from the function menu.
   To display the FAM cursors again, go back to step 3a.

   e. If the B/M mode is not displayed, press M mode key.
   The M mode image on the FAM cursor is displayed in the B/M mode. If 2 cursors are used, the image is displayed in 2 parts. If 3 cursors are used, the image is displayed in 3 parts.

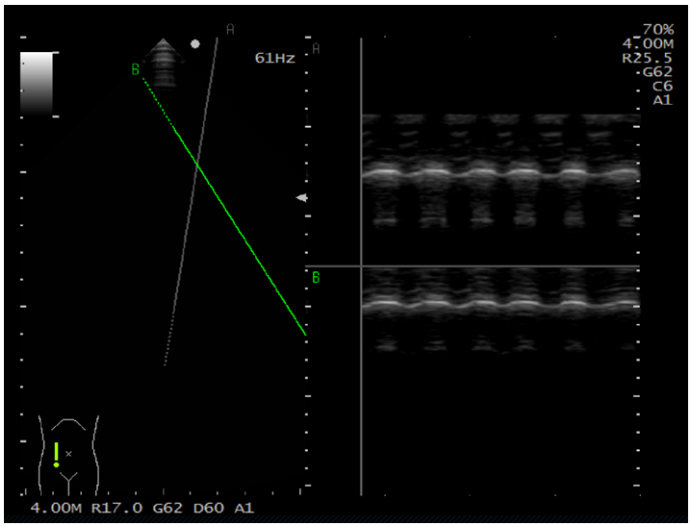


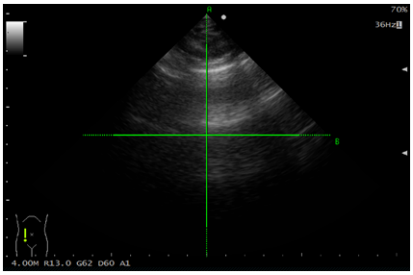
Fig.2: Display example (when 2 cursors are used).
The FAM cursors can be changed even in the B/M mode.
To return to 1B mode image, Press [B] mode key and switch the screen

(3) Cursor Display for Left Ventricular Short-axis and Short Axis Cross-section Images

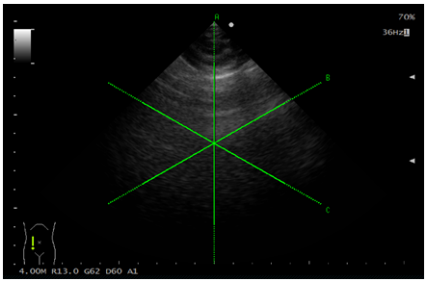
This function enables you to display a free angular M mode image by simultaneously displaying 3 (or 2) cursors, when you want to display the M mode of left ventricular short-axis image simply and easily.

Procedure

1. The FAM mode is engaged.
2. Turn [PSAX] on the function menu to "On".
   2 or 3 free angular M mode cursors are displayed.



With 2 FAM cursors.



With 3 FAM cursors.

3. Move the cursors on the left ventricular short-axis image.
   - To move: Use the trackball.
     The free angular M mode cursors move while maintaining their shape.
   - To rotate: Use [Pointer] rotary encoder.
     The free angular M mode cursors rotate while maintaining their shape.

   To change the number of FAM cursors
   Set the number of cursors to 2 or 3 via [FAM Cursor Number] on the function menu
4. Press the [M] mode key.
   The M mode image on the free angular M mode cursor is displayed in the B/M mode.If 2 cursors are used, the image is displayed in 2 parts. If 3 cursors are used, the image is displayed in 3 parts.

(4) Adjusting the Free Angular M mode Image

The free angular M mode image displayed by FAM can be adjusted via the Function menu.
Changing the Display Magnification
You can change the magnification of the free angular M mode image based on the size of the B mode image.

Prior confirmation

- Assign [Trace Fit] to the function menu.

Procedure

- Change the display magnification.
  a. Set [Trace Fit] in the function menu to "OFF".
  b. Select display magnification under [MAG (FAM)] in the function menu.
- Fixing the display magnification (matches the cursor length with the diagnostic distance of the B mode image)
  a. Set [Trace Fit] of the function menu to "On".

Adjusting Contrast
You can adjust the contrast of the free angular M mode image.
NOTE: Adjustment is not possible in FAM mode from Review in full-screen display.

Prior confirmation

- Assign [Dynamic Range (FAM)] to the function menu.

Procedure

1. Adjust between 1 and 16 via [Dynamic Range (FAM)] on the function menu.

(5) Ending FAM mode

Procedure

1. Select [FAM] button.
   FAMmode ends and is switched to B/M mode.
2. With the FAM cursor displayed, select the [Cursor/B.L.S] button.
   FAMmode ends and is switched to B/M mode.

3.3 Color Doppler mode

The Color Flow, Power Doppler, and eFlow modes display blood flow information in the blood vessels and heart cavities and the velocity of myocardial tissue in color on the B-mode image.

- Color Flow mode
  Like other Doppler modes, Doppler information is obtained and displayed based on the change in the flow component approaching the probe and the component moving away from the probe.
- Power Doppler 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. It is suitable for detailed observation of blood flow.
- Dual CF

Displays both color and black-and-white images simultaneously, side by side in real time.

- Directional
  Adds color to indicate directionality to the conventional power flow display.
  NOTE: The Directional display is only available in the Power Doppler mode and eFlow mode.

3.3.1 Displaying Color Doppler mode images

Prior confirmation

1. Assign [Vel. Range (Color)] to the function menu using Preset ([Preset Set-Up Menu] > [Menu-Function]).
2. Assign [Power Doppler] and [eFlow] to software button by using Preset ([Preset Set-Up Menu > Software Button])

Procedure

1. Display the B mode image.
2. Select the color Doppler mode.
   - To display images in theColor Flow mode, Press the [CF] key.
   - To display images in the Power Doppler mode, select the [Power Doppler] software button.
   - To display images in the eFlow mode, select the [eFlow] software button.
     The blood flow data is displayed in color on the B mode image. The flow component approaching the probe is displayed in reds, and the component moving away is displayed in blues. The color display may vary depending on the Invert Color Map and other settings.
3. Use the trackball to set the flow area.
4. Adjust the following to obtain a satisfactory image.
   - Velocity range of flow
     Adjust it with the [Vel. Range (Color)] on the function menu.
     Decrease the flow velocity range for slow blood flow. Increase the flow velocity range for fast blood flow. Changing the velocity range may change the size of the flow area.
   - Adjust the flow gain by using the multi-gain rotary encoder.
5. Press the [Freeze]key.

Reference information

9.6.11 Menu-Function on page 235
9.6.10 Software Button on page 234
9.6.12 Custom SW on page 236
3.3.1(2) Setting the Flow Area on page 69

(1) Dual CF

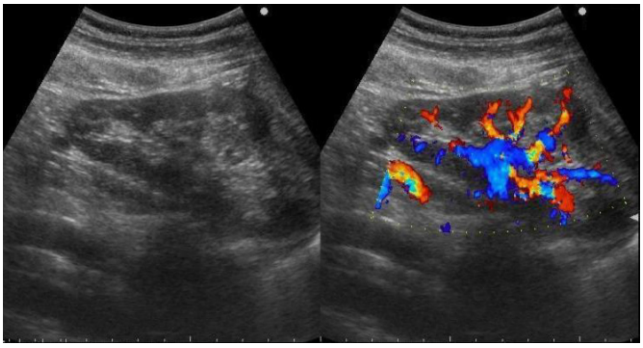
The Dual CF mode displays both color and black-and-white images simultaneously, one beside the other, in real time.

Prior confirmation

Assign [Dual CF] to the function menu using Preset ([Preset Set-Up Menu] > [Menu-Function]).

Procedure

1. Display the B mode image.
2. Press the [CF]key.
3. Select [Dual CF] from the function menu.
   The B mode image on the left screen is displayed in black and white, while the B mode image on The right screen is displayed in color in real time.
   The same image is displayed in black and white and color on the right and left.



   To end the Dual CF display, set [Dual CF] to "OFF".
   You can also close the Dual CF display by selecting another mode.

(2) Setting the Flow Area

This function adjusts the flow area display range. If the flow area is indicated by a broken line, you can move the flow area. If the flow area is indicated by a solid line, you can set the size of the flow area.
The width of the flow area is always displayed smaller than the width of the black-and-white image display range.

Procedure

1. Display a Color Flow image.
   The flow area is indicated by a broken line.
2. If the icon displayed for the TBF display is not the "Scan Area" icon, press [TBF] and make it "Scan Area".
3. Use the trackball to move the flow area to the target area.
4. Press the [Enter]key.
   The flow area position is finalized and the flow area is indicated by a solid line.
5. Use the trackball to adjust the size of the flow area (vertical height and horizontal width).

If you roll the trackball up and down, you can adjust the height of the flow area.
If you roll the trackball left and right, you can adjust the width of the flow area.

6. Press the [Enter]key.
   The adjusted height and width are finalized, and the flow area is indicated by a broken line.
7. Repeat steps 3 to 6 to adjust the flow area.
   When the flow area becomes larger than the display width of the black-and-white image, the display width of the black-and-white image is adjusted so it matches the size of the flow area.

(3) Displaying color pixels in an overlay display

Prior confirmation

The following settings must be made in advance.

- Assign [Accumu. Imaging] to the function menu.
- Assign [Accumu. Time] to the function menu.

Accumulates the color pixel data for the time specified in Accumulation Time and then displays the image in an overlay display.

Procedure

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

Reference information

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

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 displays a B mode image and a D mode image.You can observe blood flow information on a D mode image while checking the B mode image to see what part of the body the detected blood flow information comes from.
The following 2 types are available in D mode.

- PW Doppler
  Emits ultrasound beams as discrete pulses to display aD 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 aD mode image. You can change the ultrasonic wave transmission direction by connecting a steerable CW-compatible probe. CW Doppler can detect peak flow velocity because it receives signals at all depths, but it has no position information.

3.4.1 Displaying the Doppler waveform

Use the steps below to display Doppler waveforms.

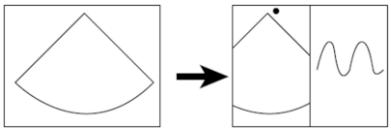
Prior confirmation

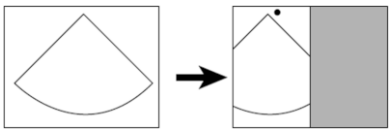
If necessary, assign the following function:

- Assign [Sample Volume], [Vel. Range (D)] and [Doppler Gamma] to the function menu using Presets ([Preset Set-Up Menu > Menu-Function]).
- Assign [Full M/D] to Software Button by using the preset ([Preset Set-Up Menu > Software Button]).

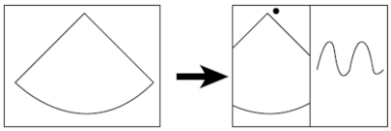
Procedure

1. Display a B mode image (1B).
2. Press the [PW] key or the [CW] key.
   The display switches to B/D mode.
   In PW, you can switch the following.
   - When Triplex Mode of [Preset Set-Up Menu > DISP-D, Color] is set to DISP-D, Color/>"Triplex":
     Both the B mode image and the PW waveform are displayed in real time.

     
   - When Triplex Mode of [Preset Set-Up Menu > DISP-D, Color] is set to DISP-D, Color/>"B-Real":
     The B mode image is displayed in real time, and the D mode image is displayed as blank.

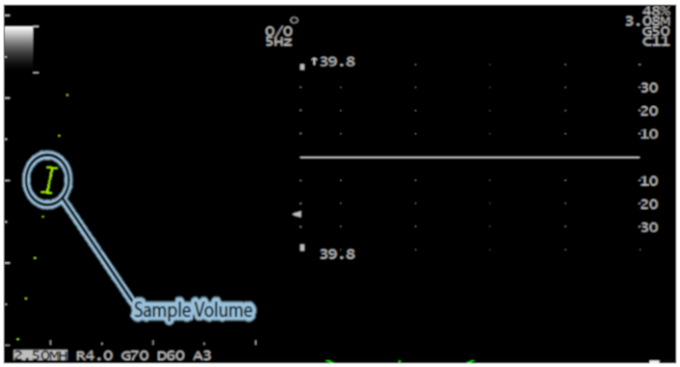
     

     If you configure the sample volume setting and then press [Select] key, theD mode image is displayed.
   - When Triplex Mode of [Preset Set-Up Menu > DISP-D, Color] is set to DISP-D, Color/>"D-Real":
     When a cursor is displayed: The B mode image freezes and the D mode image is displayed in real time.
     When a cursor is not displayed: The B mode image is displayed in real time, and the D mode image is displayed as blank.



3. Use the trackball to adjust the sample volume to the velocity detection position on the B mode image.
   To adjust the size of the sample volume (this operation is not available in CW mode.)

   a. Use [Sample Volume] in the function menu to adjust the size of the sample volume.



4. Adjust so you obtain a satisfactory image.

   - To correct the angle difference (angle correction) between the incident angle of the ultrasound and the blood vessel:
     Use [Angle Correction] on the function menu to make adjustments.
   - To adjust the velocity range: Adjust using [Vel. Range (D)] on the function menu
   - Adjust the gain by using the multi-gain rotary encoder.
   - To correct the contrast: Adjust using [Doppler Gamma] on the function menu.
   - Suppress aliasing.
     Adjusting the baseline

     a. Select the [Cursor/B.L.S] button.

     b. Rotate the [Pointer] rotary encoder to adjust the baseline position.
        To return the baseline to its original position (the preset setting position)
        Select [Cursor/B.L.S] button again.

   Displaying only D mode images
   To display D mode images in real-time, single screen mode, select the [Full M/D] software button.

5. Press [Freeze] key when you have captured a good image to produce a still image. Both the B mode and D mode images freeze.

3.4.2 TDI mode

The Tissue Doppler Imaging (TDI) mode is a Doppler display that is intended to enable the visualization of movement, such as of the myocardium. It is different from the conventional Doppler display, which is intended to show blood flow.

Prior confirmation

The following settings must be made in advance.

- Assign [TDI] and [Power Doppler] to Software Button.
  Assign [Directional] and [Vel. Range (Color)] to the function menu using preset ([Preset Set-Up Menu > Menu-Function]).

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

Procedure

1. Display a B mode image in real time.
2. Select the Flow mode.
   To display images in TDI Color, press [CF] mode key.
   To display images in TDI Power Doppler, select the [Power Doppler] software button.
   To display images in TDI PW, press [PW] mode key.
   To display images in TDI Directional Power Doppler, select [Directional] on the function menu.
3. Select the [TDI] software button.
   It displays TDI mode images.
4. Adjust the following to obtain a satisfactory image.
   - Velocity range of flow
     Adjust it with the [Vel. Range (Color)] on the function menu.
     Lower the velocity range for slow-moving tissues. Increase the velocity range for fast-moving tissues. Changing the velocity range may change the size of the flow area.
   - Adjust the flow gain using [Pointer] rotary encoder.
5. Press [Freeze] key when you have obtained a good image.
   The image freezes.

Reference information

9.6.11 Menu-Function on page 235
9.6.10 Software Button on page 234
9.6.12 Custom SW on page 236

3.5 Adjusting images

3.5.1 Adjusting images

(1) Adjusting the gain

(a) Adjusting B mode image gain

Procedure

- Use the [Freeze] rotary encoder to adjust the gain of the B mode image.

- Turn the [Freeze] rotary encoder to the right.
  The image becomes brighter.
- Turn the [Freeze] rotary encoder to the left
  The image becomes less bright.

- Adjusts the gain for each depth.
  The gain of both B mode and M mode images can be adjusted. There are 8 sliders, which correct the sensitivity of the depth for each mode.
  Use the [TGC] sliders to adjust to the desired depth.

  a. Select TGC on the touch panel.
     Slide the [TGC] slider to the right to brighten the image. Slide the [TGC] slider to the left to darken the image.

  b. To set all at one time:
     If you trace along the sliders from top to bottom, they will take the shape you traced with your finger.
     To return all sliders to the center:
     Select  .

(b) Adjusting M mode image gain

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

Procedure

- Turn the multi-gain rotary encoder to adjust the M mode gain.
  - Turn the multi-gain rotary encoder to the right.
    Image sensitivity increases.
  - Turn the multi-gain rotary encoder to the left.
    Image sensitivity decreases.

(c) Adjusting D mode image gain

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

Procedure

- Turn the multi-gain rotary encoder to adjust the D gain.
  You can also use the multi-gain rotary encoder to adjust the gain in CW and TD-PW modes.

(d) Adjusting image gain in the color Doppler mode

Adjust the gain in Color Flow, Power Doppler and eFlow modes.

Procedure

- Turn the multi-gain rotary encoder to adjust the color Doppler gain.

(2) Auto Optimizer

Optimizes the items specified in Presets for Gain (B [M]) and Dop Velocity/Base Line Shift.
Specify the items to be optimized by selecting [Preset Set-Up Menu> Auto-optimizer].
Use Brightness Level to adjust the target value for Gain (B [M]).
NOTE: The HOME button is not available during Auto Optimizer operation.

Prior confirmation

1. Assign [Brightness Level] and [Auto-optimizer] to function menus to make automatic adjustments to B or M mode images.

Procedure

- Press the [Auto-optimizer] key for the B or M mode image.
  Gain is automatically adjusted.
  The B or M mode target brightness value can be switched to Auto or adjusted within the range of 40 to 80 by using [Brightness Level]. Set the target value in [Brightness Level].
  Gain is automatically adjusted.
- Press the [Auto-optimizer] key for the D mode image.
  The velocity range and Doppler baseline are automatically adjusted.
  Use Base Line Position in the preset ([Preset Setup] > [Auto-optimizer]) to set the position of the Doppler baseline.

(3) Switching frequencies

(a) Switching transmission frequencies

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

Prior confirmation

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

Procedure

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

Reference information

9.6.11 Menu-Function on page 235

(b) Switching the reference frequency

Switches the reference frequency during frequency analysis.

Prior confirmation

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

Procedure

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

Reference information

9.6.11 Menu-Function on page 235

(4) Setting the focus position

Changes the focal points used when the ultrasound beam is emitted.
This function focuses the ultrasound beam, resulting in a clearer image. You cannot set all focal points to Off. One point is always set as a focal point.
B mode images have transmitting points F1 to F8 that divide the maximum diagnostic distance in the distance direction into 8 parts. You can set the focus at up to any 3 of these points
In the case of an M mode image, one optimum focal point is set near the center of the display range. The focal points vary with the display depth. This is the same when only the M mode image is displayed.
In the case of a B/D mode display, one focal point is set according to the sample volume.
Also, when an M mode image or a D mode image in a B/* mode display is frozen, you can perform multi-stage focus setting on the B mode image.
The focus position cannot be moved to a deeper point than the display depth.
NOTE: If you set multiple focal points, you can obtain If you set multiple focal points, you can obtain an image with greater resolution, but the frame rate decreases.

Prior confirmation

Assign [Focus (B)] to the function menu using preset ([Preset Set-Up Menu > Menu-Function]).

Procedure

1. Select the method for setting focal points via [Focus (B)] in the function menu.
2. Set the transmission focus position.

    a. If the icon displayed for the TBF display is not the "Focus" icon, press [TBF] key and make it "Focus".

    b. Use the trackball to move the transmission focus position.

    To change the distance between focal points (multi-point focus)
    Rotate [Pointer] rotary encoder and adjust.

Reference information

9.6.11 Menu-Function on page 235

3.5.2 Switching the display range

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

The depth is common to both the B and M mode images. The display depth remains as last set, even if the mode changes. The display depth cannot be changed for a frozen image.

(1) Changing the display range

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

Prior confirmation

Set Zoom to Off.
Cancel freeze and switch to real time.

Procedure

- Turn the [Zoom/Depth] rotary encoder to change the display range.
  - Turning the [Zoom/Depth] rotary encoder to the right reduces the displayed range.
  - Turning the [Zoom/Depth] rotary encoder to the left, expands the displayed range.

  NOTE: The upper and lower limits of display ranges vary between probes.

(2) Setting the Scan Area

This sets the scan area for B mode images. Reducing the scan area can raise the frame rate. If the scan area is less than the maximum scan area, you can move it left or right with the trackball.

Prior confirmation

- If the icon displayed for the TBF display is not the "Scan Area" icon, press [TBF] key and make it "Scan Area".

Procedure

1. Set the TBF display to "Scan Area".
2. Set the scan area.
   To change the scan area:
   Use the [Pointer] rotary encoder to enlarge or reduce the scan area.
   To move the scan area:
   Use the trackball to move the scan area. You can change the scan area even after moving it.

Reference information

9.6.12 Custom SW on page 236

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

Prior confirmation

Assign [B/* Format] to the function menu.

Procedure

- Select [B/* Format].
  In [U/L] 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

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

(4) 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

9.6.11 Menu-Function on page 235

(5) Changing the display movement speed in sweep mode

Prior confirmation

Assign [Sweep Speed (M)] or [Sweep Speed (D)] to 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

9.6.11 Menu-Function on page 235

(6) Shifting the baseline vertically

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

9.6.11 Menu-Function on page 235

(7) Changing the velocity range

Sets the velocity range of the D mode or in the Color Flow mode. The velocity range varies depending on the mode and the operating conditions.

Prior confirmation

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

Procedure

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

Reference information

9.6.11 Menu-Function on page 235

3.5.3 Rotating or inverting images

(1) Rotating tomographic images

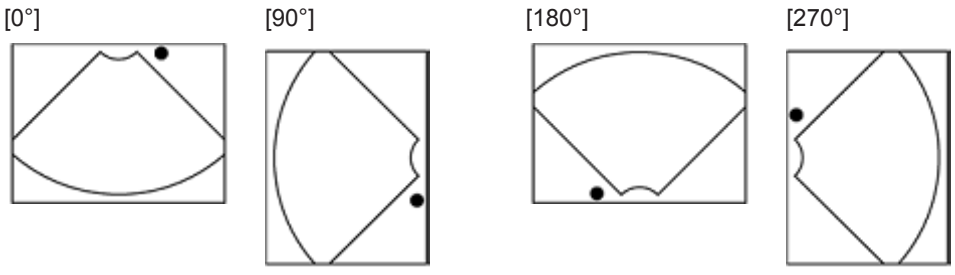
Rotates a B mode image, using its center as the axis of rotation, in 90° increments. The marks associated with the image (active mark, cursor, etc.) rotate along with the image.

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

9.6.11 Menu-Function on page 235

(2) Inverting tomographic images

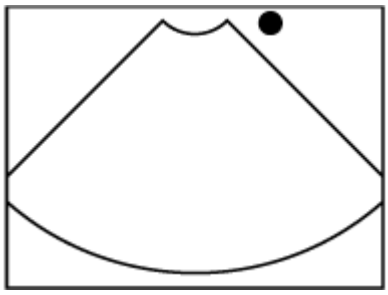
Prior confirmation

Assign [Invert L/R] or [Invert U/L] to function menu.

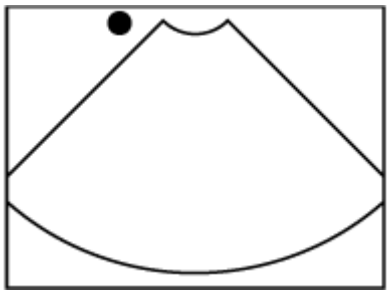
Procedure

- Select [Invert L/R] in the function menu.
  The tomographic image is inverted L/R.

Off

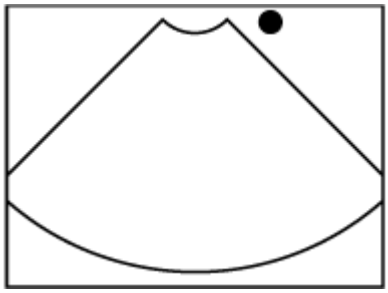


On

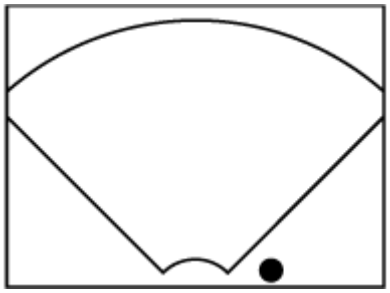


- Select [Invert U/L] in the function menu.
  The tomographic image is inverted vertically.

Off



On



Reference information

9.6.11 Menu-Function on page 235

3.5.4 Inverting Doppler waveform and colors

(1) Inverting the waveform display

Displays a D mode image vertically inverted with reference to the baseline.

Prior confirmation

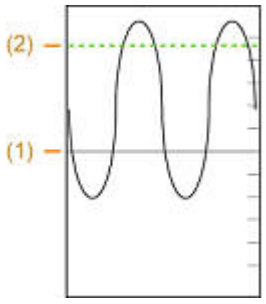
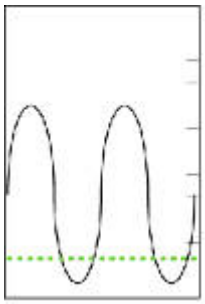
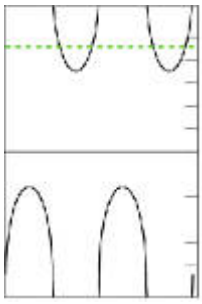
Assign [Invert Spectrum] to the function menu.

Procedure

- Select [Invert Spectrum] in the function menu.

Display example

The top and bottom of the displayed waveform is inverted for the axis set with Invert Axis in the preset ([Preset Setup] > [Doppler1]).

[Invert Spectrum]	Off	On	On
[Invert Axis]	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 preset ([Preset Setup] > [Display2]), the color polarity is inverted in coordination with [Invert Spectrum].

Reference information

9.6.11 Menu-Function on page 235

(2) Inverting color polarity

The color map can be inverted using Color Flow, Directional Power Doppler , Directional eFlow, TDI Color and TDI Directional Power Doppler

Prior confirmation

Assign [Invert Color Map] to the function menu.

Procedure

- Select [Invert Color Map] in the function menu.
  Color polarity is inverted.

[Invert Color Map]	Off	On
		

If Invert Link is set to On in the preset ([Preset Setup] > [Display2]), the color polarity is inverted in coordination with [Invert Spectrum].

Reference information

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

3.5.5 Zooming images

Use this function to enlarge part of an image.
There are 2 methods for zooming images

- Center zoom: The image is enlarged from the center.
- Box zoom: Displays a ROI showing an enlarged area and the image inside the ROI is enlarged.

(1) Center Zoom

Prior confirmation

Use the preset ([Preset Set-Up Menu> DISP-B, M]) to set the DISP-B, M/>Zoom Method to "Center".

Procedure

1. Start zooming.
   - Press [Zoom/Depth] rotary encoder to activate Zoom.
2. Zoom and move an image.
   Enlarging/reducing images
   Rotate the [Zoom/Depth] rotary encoder to zoom the image.
   Moving an image
   Roll the trackball up, down, right or left.
   Returning an image to its original size
   Press the [Zoom/Depth] rotary encoder.

(2) Box Zoom

This function displays an enlargement of the ROI.

Prior confirmation

Use the preset ([Preset Set-Up Menu> DISP-B, M]) to set the DISP-B, M/>Zoom Method to Box.

Procedure

1. Start zooming.
   - Press [Zoom/Depth] rotary encoder to activate Zoom.
2. Adjust the ROI.
   To move the ROI
   Roll the trackball up, down, right or left.

To adjust the ROI size
Rotate [Pointer] rotary encoder.

3. Enlarge the image.

   a. Press the [Enter]key.
      The zoomed image is displayed.
      Returning an image to its original size
      Press the [Zoom/Depth] rotary encoder.

(3) Switching between Center and Box zooming

Procedure

- While an images is zoomed, select [Enter].
  Switches between Center and Box zoom.
  Each time you select [Enter], it switches between Center and Box zoom.

3.5.6 Tissue Harmonic Imaging (THI)

There are two types of Tissue Harmonic Imaging: Filter-method Tissue Harmonic Imaging (FmT) and Wide-band Tissue Harmonic Imaging (WbT).
NOTE: THI mode is not available with some probes.Menus related to THI cannot be selected when using a probe that does not support THI.

(1) Displaying in FmT and WbT Modes

Frequencies at 2X the transmission frequency are received and an image is displayed.
The FmT/WbT mode can be applied in the B (B+Color), M (M+Color), or B/* display mode.

Prior confirmation

- Assign [FmT] or [WbT] to function menu.

Procedure

1. Select [FmT] or [WbT] from the function menu.
   Displaying the transmission frequency
   Under the preset ([Common Preset > Common1]), set Frequency Information to "Transmit".
   Displaying the receiving frequency
   Under the preset ([Common Preset > Common1]), set Frequency Information to "Receive".
   The automatic display of the receiving frequency is highlighted.
   To cancel the FmT or WbT modes, turn them Off.

3.5.7 Compound mode

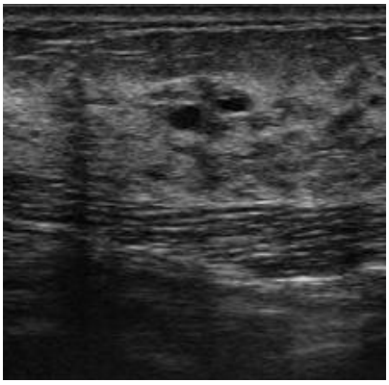
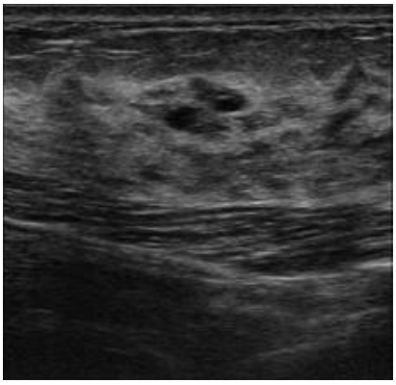
Ultrasound beams from multiple angles are composited to reduce ultrasonic exposimetry direction artifacts such as side lobes, multiechoes, and speckle noise.

Prior confirmation

Assign [Compound] to the function menu using preset ([Preset Set-Up Menu > Menu-Function]).
For details about compatible probes, see the separate manual "Instructions for Use".
[Compound] cannot be selected while operating in the B/M or B/D modes or during Trapezoidal scanning.

Procedure

1. Display the image in B Mode.
2. From the function menu, set [Compound] to "On".
   Display example: Left: [Compound] is Off, Right: [Compound] is On

To cancel the display, turn [Compound] "OFF".

(1) Adjusting the compound display

This describes setting the compound angle via Angle (Compound).

Procedure

If [Angle (Compound)] has not been assigned on the function menu, assign it via Presets ([Preset Set-Up Menu > Menu-Function]).

Procedure

1. Turn [Compound] to "On" in the B mode.
2. Set the compound angle using [Angle (Compound)] in the function menu.
   The angle can be set in the range of "5" to "30", in increments of 5°. The configurable angle varies depending on the probe.

3.5.8 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 the function menu.

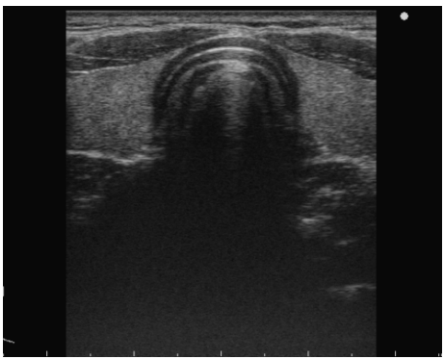
NOTE: [Trapezoidal Scanning] cannot be selected while operating in the B/M or B/D modes or during Compound.

Procedure

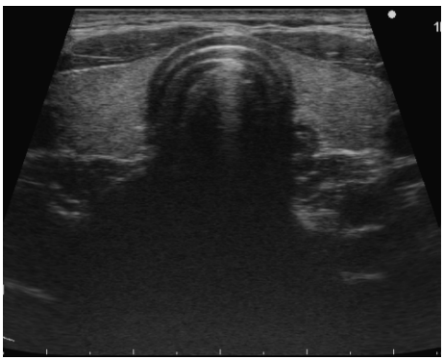
1. Display the image in B Mode.
2. From the function menu, set [Trapezoidal Scanning] to "On".
   The image is displayed in a trapezoidal shape.

Display example

Table1: Example of Trapezoidal Scanning



[Trapezoidal Scanning]: Off



[Trapezoidal Scanning]: On

To cancel the display, select [Trapezoidal Scanning] again and turn it "Off".

Reference information

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

3.5.9 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

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

3.6 Adaptive Image Processing (AIP)

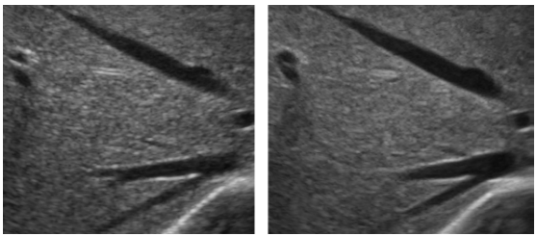
Adaptive Image Processing (AIP) combines processing for determining and emphasizing the existence of boundaries that have different properties with processing for removing speckle noise to display the structure and changes in characteristics of tissues more clearly.

Prior confirmation

Assign [AIP] to the function menu using preset ([Preset Set-Up Menu > Menu-Function]).

Procedure

1. Display the image in B Mode.
2. Select [AIP] from the function menu.



Display example: Left: AIP OFF; Right: AIP ON
To cancel AIP, select [AIP] again from the function menu.

3.6.1 Adjusting AIP Images

There are 2 items that can be used for adjusting AIP images, AIP Edge Sens and AIP Resolution.

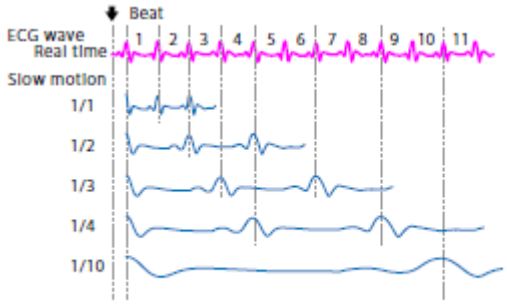
AIP Edge Sens	1 to 8	Sets the sensitivity level for detecting boundaries that have different properties from "1" to "8". The larger the number, the more sensitive.
AIP Resolution	1 to 8	Increase the value to improve spatial resolution. Reduce this value to remove speckle noise.

AIP Level is the setting for selecting a pattern (1 to 6) of combinations of AIP Edge Sens andAIP Resolution.
Assign an AIP Level to the function menu by using the preset ([Preset Set-Up Menu>Menu-Function]), and make adjustments.

3.7 Dynamic Slow Motion Display (D.S.D.)

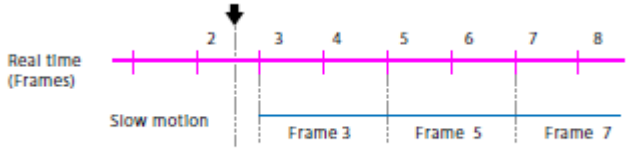
D.S.D. displays real-time images and slow-motion images side by side.
It is suitable for observing fast-moving tissues.
Displays B mode or B Flow (including eFlow and Power Doppler) mode images in real time.
D.S.D. has the following 2 types.

- D.S.D. (ECG) mode
  This mode provides slow-motion display, synchronized to the ECGR-wave. The slow-motion display is reset at a set R-wave interval. For example, if the DSD Speed is set to "1/2", the display is reset at 2 heartbeats.



D.S.D. (ECG) Mode (the arrow indicates the timing of switching to the D.S.D. (ECG) mode)

- D.S.D. (Time) mode
  Displays image data stored in memory (frame rate) in slow motion. Slow-motion display is reset to real-time display once all the data in memory has been played back.



D.S.D. (Time) Mode (the arrow indicates the timing of switching to D.S.D. (Time) mode)

D.S.D. mode cannot be displayed if the following functions are running.

- ECG Sync
- Dual CF
- Compound

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

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

Prior confirmation

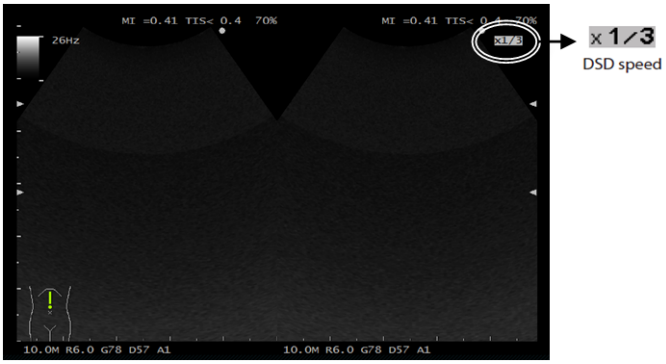
If necessary, assign the following function using Preset ([Preset Set-Up Menu> Menu-Function]).

- [ECG Display]
- [DSD (ECG)]

- [DSD Speed]
- [DSD Refresh]

Procedure

1. Display a real-time image in 1B mode.
2. Set the [ECG Display] to "On" and display the ECG waveform.
3. Select [DSD (ECG)] from the function menu.
   The real-time image is displayed on the left screen, and the slow-motion image on the right.



   - Displaying a real-time image in 1B mode
     Press the [Freeze]key. While the image is frozen, you can perform a search and loop playback. Pressing Freeze again returns the display to the D.S.D. (ECG) mode.
   - To set the playback speed and the refresh interval:
     Select [DSD Speed] from the function menu and change the speed. Slow motion playback begins at the R-wave immediately after the change. The setting value is highlighted in the upper right of the D.S.D. (ECG) mode display.
   - To refresh without changing the setting value:
     Select [DSD Refresh] from the function menu.
   - Videos can only be saved in Video Clip format.

Reference information

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

(1) Ending D.S.D. (ECG) mode

Procedure

1. From the function menu, set [DSD (ECG)] to "Off".
   The display switches to the 1B mode.

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

Displays slow motion at a set time unit.

Prior confirmation

If necessary, assign the following function using Preset ([Preset Set-Up Menu > Menu-Function]).

- [DSD (Time)]
- [DSD Speed]
- [DSD Refresh Timing]
- [DSD Refresh]

Procedure

1. Display a real-time image in 1B mode.
2. Select [DSD (Time)] from the function menu.
   The real-time image is displayed on the left screen, and the slow-motion image on the right.
   - To display a real-time image in 1B mode:
     Press the [Freeze]key. While the image is frozen, you can perform searches and loop playback. Pressing again returns the display to the D.S.D. (Time) mode.
   - To change the playback speed:
     Select [DSD Speed] from the function menu and change the speed. The setting value is highlighted in the upper right of the D.S.D. (Time) mode display.
   - To change the refresh interval:
     Select [DSD Refresh Timing] from the function menu.
   - To refresh without changing the setting value:
     Select [DSD Refresh] from the function menu.
   - Videos can only be saved in Video Clip format.

Reference information

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

(1) Ending D.S.D. (Time) mode

Procedure

- Select [DSD (Time)] from the function menu.
  The display switches to the 1B mode.

3.8 Displaying the puncture guide lines

Puncture guide lines can be displayed on a B mode screen to determine the direction in which the puncturing needle should be inserted. If a probe incorporates multiple puncture guide lines, the appropriate guide line can be selected.

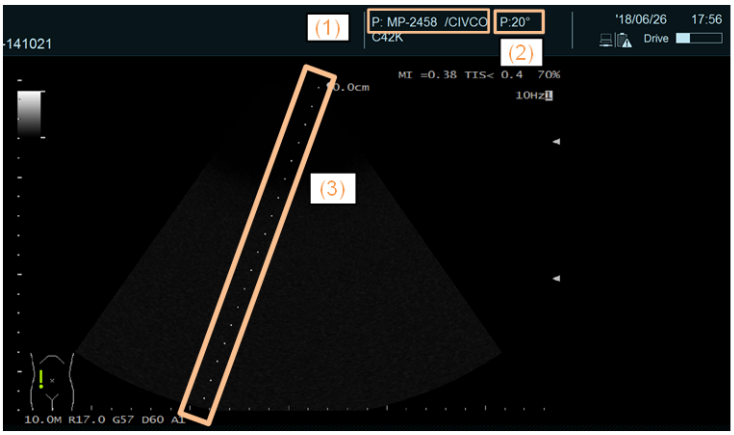
Prior confirmation

Assign [Puncture Guide Line], [Biopsy Select], [Puncture Depth Display]and [Puncture Angle Select] to a function menu.
Important points for using puncture guide lines:

- Puncture guide lines should be used as a guide for orientating the needle when inserting it.
- Make sure that the model name of the currently used puncture adapter is identical to that displayed on the screen.
  When using probes and puncture adapters that have multiple insertion angles, check that the insertion angle of the puncture adapter and the angle set on the screen are the same.
- Be sure to check the needle echo before using the probe.
  If the speed of sound in tissue differs from 1530 m/s, the angles of the puncture guide line and needle echo may not match.
- Check the safety of any puncture path that is not visible on the display.
  There may be blood vessels or other organs in the puncture path that are not visible on the display.
- Verify the location of the puncturing needle using the needle echo that is displayed on the display.
  NOTE: For details about puncture operations, refer to the documentation for the probe and the puncture adapter.
  NOTE: You can also read "Precautions Concerning the Probe" in the separate "Instructions for Use".

Procedure

1. Press the [B] key to switch to the B mode image (single-screen view).
2. Set[Puncture Guide Line] in the function menu to "On".
   Puncture guide lines are displayed.
   The puncture angle is displayed at the top of the screen.



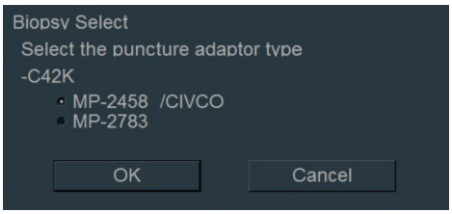
(1)Puncture adapter name, (2) Angle, (3) Puncture guide line

3. Check the model name of the puncture adapter and the puncture angle.
   Changing puncture adapters.

Check if the current puncture adapter and the name on the screen are the same.
You can select [Biopsy Select] if the probe supports multiple puncture adapters.

a. Select [Biopsy Select] from the function menu.

b. Select the puncture adapter in the dialog box and select [OK].

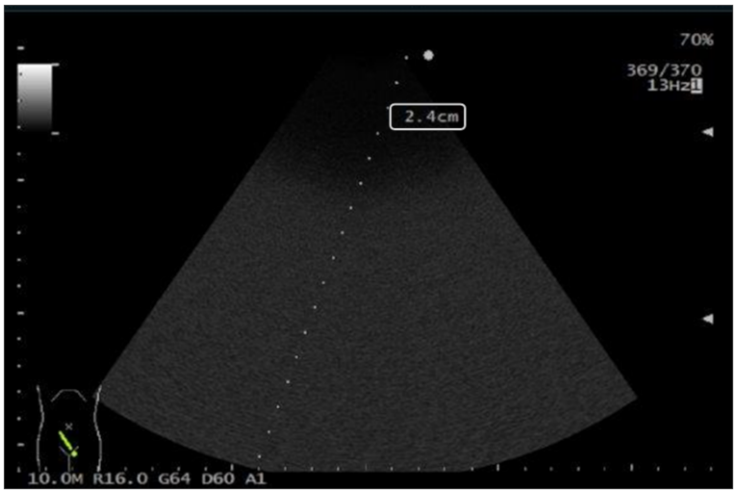


Changing the puncture angle.

Use [Puncture Angle Select] on the function menu to set the puncture angle or the distance from the ultrasonic irradiation area to the puncture guide line.

4. Measure the depth.
NOTE: The numerical value indicating the depth should be used as a guide. Before puncturing, check for error in the distance to the tip of the puncture needle using a water tank or other means.

a. From the function menu, set [Puncture Depth Display] to "On".
An arrow mark and the depth will be displayed on the puncture guide line.



b. Move the arrow mark to the required position using the trackball.

3.9 Needle Emphasis

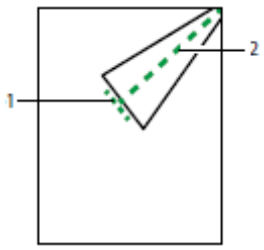
This function improves the visibility of the puncture needle echo.
NOTE: The HOME button is not available during Needle Emphasis operation.

Prior confirmation

For details about compatible probes, see the separate manual "Instructions for Use".
Assign the following to the function menu.

- [Needle Emphasis]

- [Angle Sel (NE)]
- [Reverse (NE)]
- [NE Correlation]
- [NE Sharpness]



(1) Graphic Line 1
(2) Graphic Line 2

CAUTION

- **We recommend using the puncture needle within the solid line section in the figure above.**
  If the puncture needle is inserted deeper than Graphic line 1, the Needle Emphasis effect is not 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 the Graphic lines are different from the puncture guide line.**

Procedure

1. Press [B]key.
   This switches to a B mode image in the single-screen view.
2. Set [Puncture Guide Line] in the function menu to "On".
   Puncture guide lines are displayed.
3. Select [Needle Emphasis] from the function menu.
   A Graphic Line (green dotted line) appears.
   The visibility of the puncture needle echo is improved as the puncture needle approaches Graphic Line 2.
   The following setting is necessary for displaying Graphic Line 1 perpendicular to the angle of the puncture guide lines within the available range.
   Under the preset ([Preset Set-Up Menu] > [Image-B, M2]), set NE Link to On.

Reference information

9.6.11 Menu-Function on page 235
9.6.12 Custom SW on page 236

3.9.1 Adjusting the angle of Graphic Line 2

Procedure

1. Select [Puncture Guide Line] from the function menu.

2. Select [Needle Emphasis] from the function menu.
3. Adjust the angle using an [Angle Sel (NE)] compatible rotary encoder from the function menu.
   NOTE: The maximum angle value varies depending on the probe.

3.9.2 Inverting the angle of Graphic Line 2

Procedure

1. Select [Puncture Guide Line] from the function menu.
2. Select [Needle Emphasis] from the function menu.
3. Select [Reverse (NE)] from the function menu.

3.10 Physiological Signals

3.10.1 Displaying physiological signals

Attach the ECG cable connected to the main body of the device to the patient, to display physiological signals.
NOTE: The optional PEU-ARIETTA50 is required.
The following presets are available for displaying physiological signals.

- Physiology settings: [ECG Display], [ECG Position (B)], [ECG Sensitivity]
- DISP-B, M settings: [Echo Erase]

(1) Displaying the ECG waveform

Prior confirmation

Assign [ECG Display] and [Echo Erase] to the function menu using preset ([Preset Set-Up Menu > Menu-Function]).

Procedure

1. Set [ECG Display] in the function menu to "On".
   The ECG waveform is displayed.
   Once the ECG waveform is displayed, the system detects the R wave and calculates the heart rate.
   The heart rate is displayed on the screen as "HR120".If it is displayed as HR***, the heart rate is outside of the display range (HR 30 to HR 500).
   If the ECGR-wave is not detected for 5 or more seconds, the message "Detection Error: R-wave of ECG is not detected." is displayed. Check to see that the ECG electrodes are connected correctly to the patient.
2. Adjust the display position and sensitivity.
   Waveform adjustment menu

	Display position menu	Sensitivity menu
ECG waveform	ECG Position (B)	ECG Sensitivity

If the display is difficult to read because the M mode image and the physiological signal overlap:
Use [Echo Erase] in the function menu to erase part of the M mode image.

Reference information

Physiology Settings on page 239
DISP-B, M Settings on page 222

(2) ECG Sync Display: SYNC

The ECG sync display (SYNC function) is a function that displays the ECG waveform image only where the ECG sync mark is passing. You can obtain an image in any time phase while observing the time phase of the ECG waveform.

Prior confirmation

- Assign [ECG Sync], [R-Delay Time] and [B/Sync Mode] to the function menu using Presets ([Preset Set-Up Menu > Menu-Function]).

Procedure

1. Display the ECG waveform.
2. Select [ECG Sync] from the function menu.
   A SYNC mark is displayed on the ECG waveform in the B mode.The DELAY time from the R-wave is displayed on the screen.
3. Adjust the SYNC time.
   Setting the SYNC time
   Set in 10 ms intervals using [R-Delay Time] on the function menu.
   If the message "Range Limit; Selection is not available" is displayed, the setting range for SYNC time has been exceeded. Readjust it on the function menu.
   Displaying the normal B mode and ECG Sync B mode side by side
   In the function menu, set [B/Sync Mode] to "On".

3.11 Search

The search function temporarily records, in the system's memory, an image prior to the image being frozen, and plays back and observes the image after it is frozen. Even if you are not able to freeze the image at the right moment, you can use the search function to return to past images and find the image that you need.
When an ECG waveform is displayed, a search mark is displayed on the ECG waveform. While checking the time phase, you can search for images and play the images back. The search function can be used to search for and observe B mode images, and can be used to and scroll through and observe M and D mode images. When multiple images are displayed (for example, in dual screen mode), each image can be recorded separately for playback

and display. However, if any of the images are displayed in real time, you cannot search or scroll through images.
Please be aware of the following points when using the search function.

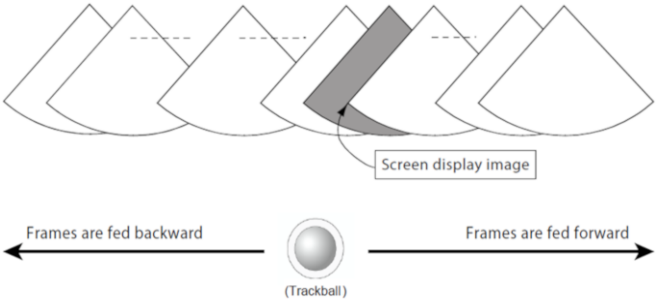
- The number of images that can be recorded in memory varies by image display conditions, such as the probe used, the display mode, and display depth. This means, the number of images that can be recorded is not always the same.
- Only images recorded in the system's memory can be searched or scrolled through.
  If you freeze an image immediately after canceling the freeze state, search and scroll is possible only for images recorded in memory during this interval, even if the memory is not filled to capacity.
  When the capacity of memory is exceeded, images stored prior to the freeze are erased in chronological order, starting from the oldest image. Neither search nor scroll is possible with erased images.
- All images recorded in memory are deleted when image display conditions, such as mode or display depth, are changed or when image freeze is canceled.

3.11.1 Playing back cine memory images

Searching and scrolling

1) Search

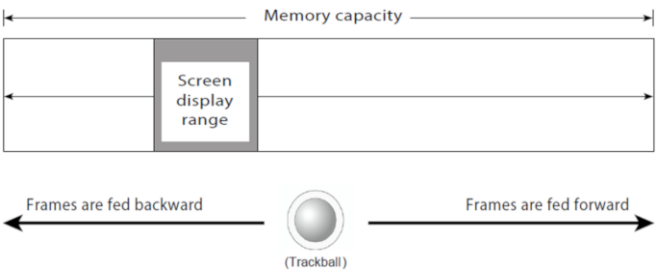
Forward searches flip through the images stored in memory one-by-one until the last (latest) image is reached. Backward searches flip through the images until the first (oldest) image is reached.



During freeze, the search number (e.g. 23/176) is displayed. The number on the left is the frame number of the image being displayed, and the number on the right represents the total number of image frames recorded in memory.

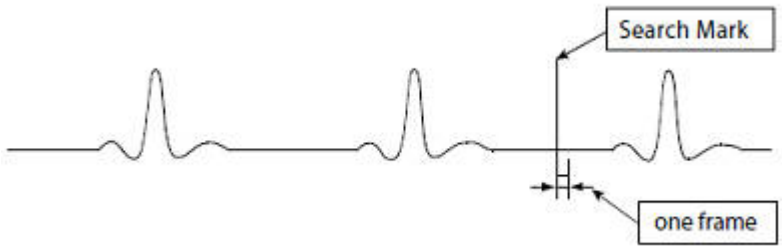
2) Scroll

The display range can be moved between the first and last image in memory.



Search mark

When the ECG waveform is displayed in B or 2B mode display, a search mark appears on the ECG waveform.
The search mark moves as images are searched. The search mark provides information on the displayed image, such as its location in memory and its time phase on the ECG waveform.



3.11.2 Searching and scrolling B,M and PW mode images

Procedure

1. Press [Freeze]key.
   The image freezes.
2. If the T.B.F. display is not set to "Playback", press the [T.B.F.] key and set the T.B.F. display to "Playback".
3. Use the trackball to search or scroll within the desired image range.
   - Rolling the trackball to the right searches or scrolls in the forward direction.
   - Rolling the trackball to the left searches or scrolls in the backward direction.

3.11.3 Searching and scrolling B/M, and B/PW mode images

Procedure

1. Press [Freeze]key.
   The image freezes.
2. If the T.B.F. display is not set to "Playback", press the [T.B.F.] key and set the T.B.F. display to "Playback".
3. Search or scroll.
   - Use the trackball to search or scroll through active images.
   - Use [Pointer] rotary encoder to search or scroll through the inactive image.

3.11.4 Loop Playback

This function continuously plays back images recorded in the memory (loop playback). Loop playback is available in 1B, 2B and 4B modes.
NOTE: The [HOME] button is not available during loop playback.

Procedure

1. Press [Freeze]key.
   The image freezes.
2. If the T.B.F. display is not set to "Playback", press the [T.B.F.] key and set the T.B.F. display to "Playback".
3. Roll the trackball upwards.
   Loop playback starts.
   During loop playback, the search mark does not appear on the cine scale. The image range subject to the loop playback cycle uses the image immediately after the frozen image as the reference point, and is determined by the heart rate and time settings in the ECG Cycle and Time Cycle.
4. Adjust the loop playback speed.
   - Roll the trackball down to slow down the loop playback speed.
     When the playback speed is slowed, it becomes a slow motion playback.
   - Roll the trackball up to speed up the loop playback speed.
5. To stop loop playback, roll the trackball left or right.
   When the ECG waveform is displayed, the search mark reappears in the time phase position of the displayed image.

Setting the Loop Playback Range

Sets loop points at the desired positions.

Procedure

1. Press [Freeze]key.
   The image freezes.
2. If the T.B.F. display is not set to "Playback", press the [T.B.F.] key and set the T.B.F. display to "Playback".
3. Set the initial frame of the loop.
   a. Display the initial frame for the loop using the trackball.
   b. Press the [Enter]key.
      When the search mark is displayed, the time phase setting mark (a white dotted line) is displayed.
4. Set the final frame of the loop.
   a. Display the final frame of the loop using the trackball.
   b. Press the [Enter]key.
      The screen returns to the initial frame.
      When the search mark is displayed, the time phase setting mark (a white dotted line) is displayed..
5. Roll the trackball upwards.
   The loop is played back, starting with the frame with the smallest number in the time phase and ending with the frame with the highest number.

The loop is played back, starting with the frame with the smallest number in the time phase and ending with the frame with the highest number.

Simultaneous Loop Playback of 2B and 4B Images

Sets loop points at the desired positions.

Procedure

1. Display a 2B or 4B mode image.
2. Press the [Freeze]key.
   The image freezes.
3. If the T.B.F. display is not set to "Playback", press the [T.B.F.] key and set the T.B.F. display to "Playback".
4. Set the loop point for each screen.
   a. Press [Select] key to switch the active screen.
   b. Set the loop playback range.
5. Select playback mode using [Loop Mode] from the function menu.
   - "Long": Adjusts playback to the B mode which has the greatest number of playback images. The B mode with fewer playback images will stop loop playback until the playback of B mode with more playback images is completed.
   - "Short": Adjusts playback to the B mode which has fewer playback images. The B mode with more playback images will stop loop playback until the playback of B mode with fewer playback images is completed.
   - "Align": The B mode with the greatest number of images becomes the reference for playback time, and the playback time of other B modes are adjusted so they all end their playback at the same time.
   - "Free Run": The loop playback for each B mode is run without synchronization.
6. Roll the trackball upwards.
   The loop is played back, starting with the frame with the smallest number in the time phase and ending with the frame with the highest number.
   Loop playback is stopped by canceling the freeze or by rolling the trackball left or right.

4

Outputting images

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

4.1 Outputting images

This system stores images using a digital storage function that conforms to the DICOM standard.
Images can be sent to a PC (or server) via the network using its digital interface.
The system has the following functions.

- Records and reads DICOM images and information on media, such as CD-R, HDD, DVD, and USB flash memory.
- Converts still images into JPEG, TIFF, and BMP formats, and videos into AVI, MP4/MOV formats before sending the data to various storage media.
- Connects the Diagnostic Ultrasound System directly to a network and transmits image data to PCs and network servers as DICOM images.
- Prints recorded images by using a DICOM printer.

In addition to recording image data and basic patient information, such as the patient's name, ID, sex, and date of birth, when images are saved under the DICOM standard, other information, such as comments, color palette, the name of the diagnostic system, and calibration information for playback measurements are also recorded. This is very useful when searching for an image or when performing playback measurements.
To display a still image file or a video file on a PC, if the file is in DICOM format, it is necessary to purchase separately sold DICOM Viewer software.
Still images stored on the internal HDD can be converted to BMP, TIFF, JPEG formats, while videos can be converted to AVI or MP4/MOV file formats for storage. When displaying these images on a PC, it is necessary to use the latest image viewing software that comes with the PC operating system (such as: Microsoft Paint or Windows Media Player 12 or higher), or to purchase image viewing/editing software that supports BMP, TIFF, JPEG, AVI and MP4/MOV file formats
NOTE: At start-up, the Patient ID is displayed as "No ID". Images cannot be stored as a "No ID".Enter the patient data on the ID input screen.
NOTE: The HOME button is not available when printing an image.

4.1.1 Important points about image recording and storage media

There are 6 different destinations to which images can be recorded, stored and/or output

- Printer: Local Printer, DICOM Printer
- System hard disk
- USB flash memory
- CD-R Buffer
- DVD (DVD-RAM)
- Network server

To ensure that the system as a whole conforms to electrical safety standard IEC60601-1-1, this system does not support commercially available drives.
Please note the following when using the following storage or recording media.

- USB flash memory
  - Use a commercially available memory device of USB mass storage class, equipped with an access lamp. Memory devices equipped with encryption or authentication functions cannot be used.
  - The physical dimensions of some devices may prevent their use. Confirm that the device can be connected to the system's USB connector.
  - Remove any straps that are attached to the USB flash memory. They may hamper operation.
  - Do not remove the USB flash memory while the access lamp of the USB memory is flashing (during data transfer). This may cause damage of the recorded data.
- DVD (DVD-RAM)
  - If a disk inside a drive is exposed to severe vibrations, it may be damaged. Remove the disk from the drive before moving the system.
  - Recording and reading is possible with CD-R and DVD-RAM discs.
  - When recording to DVD-RAM, use media that conforms to the DVD-RAM Ver. 2.1 standard.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.
  - This system is capable of formatting DVD-RAM media. It can format to either the UDF or FAT32 format. For 9.4 GB double-sided media, formatting is performed for one side at a time.
- CD-R Buffer
  - This is an internal storage space used when writing to a CD-R.To write to a CD-R disc from the CD-R buffer, select CD-R from the Image Viewer, Search Results screen.
- Network server
  - Images are sent in DICOM format.

Reference information

Chapter 5, Reviewing images on page 113

4.1.2 Image File Formats

When [User 3 (Store)] key is pressed, images are stored in the following file formats.

Type	Storage Media (Store Media)	File Format	Thumbnail Icon	Remarks
Still image	HDD	Image		
	USB CD-R Buffer DVD	DICOM		Patient information and scale factor information are added to image data. Color information is stored in Palette*1 or RGB.
		JPEG		JPEG format
		BMP		Bitmap format
		TIFF		TIFF format
	NET (DICOM)	DICOM	-	When transmitting to a server on the network, files are converted to DICOM format. Color information is stored in Palette*1, RGB or Monochrome.
Video	HDD	Line		Video data of each mode, B, B/Flow, B/Power and B/eFlow mode, can be stored. B/M, M, B/PW, PW, B/CW, CW, and DSD mode data cannot be stored. Files in these formats are stored on the internal HDD regardless of the Storage Media setting.
	HDD USB CD-R Buffer DVD	Video Clip		

*1.

If color information in the DICOM format is in Palette format, the brightness, flow rate, and dispersion information are stored separately from the color information. The colors of the Flow mode might not be displayed correctly in some viewers.

Videos stored on the system can be displayed or played back on external devices, such as PCs via the following methods.

- Playback Line images in Full Screen, and during playback, save again as a Video Clip.
- Store as DICOM, AVI, MP4 or MOV in Video Clip.
- Store Line images as Multi Image, AVI, MP4 or MOV.

4.2 Saving still images

Use this function to save 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.

4.2.1 Changing the storage format and destination of still images

Set the storage destination in the function menu or the preset.
The following items need to be set in order to store still images. Use the function menu or preset ([Preset Set-Up Menu > Store, Cine]) to set items.
I) Store Media: Sets the media for saving data.
II) Format Type (Still): Sets the storage format.
The storage format available varies according to the storage media.
Table1: Storage Media and Formats

Storage Media	Available Storage Formats
""HDD"": System hard disk	-
""USB"": USB flash memory	"DICOM" "JPEG" "BMP" "TIFF"
"CD-R Buffer": Buffer used when writing to a CD-R (internal memory)	
""DVD"": Writes directly to a DVD	
""NET(DICOM)"": A network server	"DICOM"

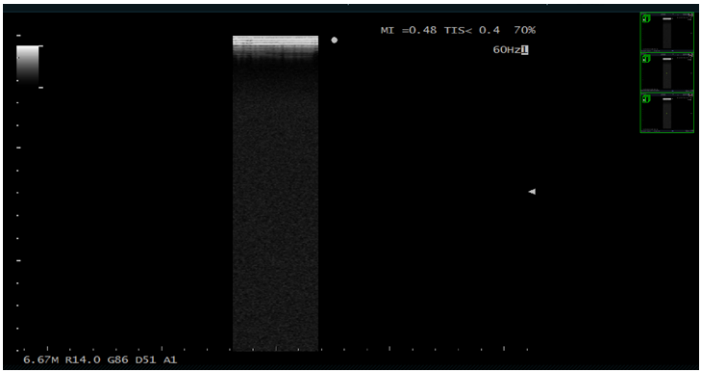
4.2.2 Saving still images

Prior confirmation

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

Procedure

1. Press [Freeze] key and freeze the image.
2. If necessary, change the storage location and format.
3. Press the [User 3 (Store)]key.
   The still image is stored in the storage media specified under Store Media.
   When the image is stored in internal HDD, it will appear as a thumbnail on the right side of the screen.



4.3 Saving a Video

The following items must be set to save videos.

Use the Function menu or the Presets [Preset Set-Up Menu > Store, Cine]) to set these items

Item name	Description
Store Media	If the storage format is "Line", files are stored on the internal HDD regardless of the setting. If the storage format is "Video Clip", files are stored in the configured destination.
Data Format	"Line" format or "Video Clip" format.
Acquisition Mode	Select either "PreTime" or "PostTime". Once the [User 3 (Store)] key is pressed, the video for the configured length of time is stored.*1
	Select either "PreECG" or "PostECG". The video is stored for the set number of heartbeats*2 after [User 3 (Store)] key is pressed.
	"Manual": Press the [User 3 (Store)] key once to start saving videos and then press the [User 3 (Store)] key again to stop.
Auto Loop (Tile)*3	"On": Plays the range to be stored in a loop, and stores it after the image has been confirmed. "Off": Stores the range to be stored without playing back in a loop.
Video Clip Auto Stop	Saves videos in Video Clip format, plays back the same range in a loop, and stores it as Line data.

*1.
Set with Time Cycle in the Function menu or the Presets ([Store, Cine]).

*2.
Set with ECG Cycle in the Function menu or the Presets ([Store, Cine]).

*3.
You can set these items by using the Presets ([Preset Set-Up Menu] > [Store, Cine]).
This is enabled if the storage format is "Line".

4.3.1 Storing a Specified Range as a Line Format Video: Pre Time/Pre ECG

You can retroactively save a video for the specified range of time beginning from the point when the [User 3 (Store)] key is pressed.
In the Line format, there is a limit on the image modes that can be saved. Active images can be saved in the 1B, B/B, 4B and Flow modes. In Dual CF mode, Flow images can be saved.

Prior confirmation

Assign [Acquisition Mode] to the function menu using Presets ([Preset Set-Up Menu > Menu-Function]) and select "Pre Time" or "Pre ECG".
When [Auto Loop (Tile)] is "Off"
Stores the range to be stored without playing back in a loop.

Procedure

1. Open a real-time image and press [User 3 (Store)] key.
   The video is retroactively saved for the range specified in Time Cycle or in ECG Cycle, from the point when the [User 3 (Store)] key is pressed.
   If Pre ECG is selected and there is no ECG sync, the message "It failed in the store of this images!" is displayed. The screen freezes.

When Auto Loop (Tile) is "On"

Stores the specified range after loop playback.

1. Open a real-time image and press [User 3 (Store)] key.
   The video is played back retroactively for the range set in Time Cycle or ECG Cycle, from the point [User 3 (Store)] key is pressed.
   The following message is displayed at the top of the screen.
   "Accept this images or cycle: Press STORE sw"
   "Retry: Press Cancel sw"
   If Pre ECG is selected and there is no ECG sync, the message "It failed in the store of this images!" is displayed. The screen freezes.
2. Use the trackball to select the loop sector.
3. Check the image, and press the [User 3 (Store)] key.
   Images are saved to the system hard disk. A thumbnail is displayed on the right of the screen.
   To cancel video acquisition, press [Cancel] key. Storage of data can also be canceled by pressing the [Freeze] switch, but past image data in the cine memory is not cleared.

4.3.2 Storing a Specified Range as a Line Format Video: Post Time/ Post ECG

You can save a video for the specified time period, beginning from the point at which the [User 3 (Store)] key is pressed.
In the Line format, there is a limit on the image modes that can be saved. Active images can be saved in the 1B, B/B, 4B and Flow modes. In Dual CF mode, Flow images can be saved.

Prior confirmation

Assign [Acquisition Mode] to the function menu using Presets ([Preset Set-Up Menu > Menu-Function]) and select "Post Time" or "Post ECG".

When [Auto Loop (Tile)] is "Off"

Stores the range to be stored without playing back in a loop.

Procedure

1. Open a real-time image and press [User 3 (Store)] key.
   Saves a video for the time period set in Time Cycle or ECG Cycle when [User 3 (Store)] key is pressed.
   If Post ECG is selected and there is no ECG sync, the message "It failed in the store of this images!" is displayed. The screen freezes.

When [Auto Loop (Tile)] is "On"

Stores the specified range after loop playback.

Procedure

1. Open a real-time image and press [User 3 (Store)] key.
   The video is played back on loop for the range specified in Time Cycle or in ECG Cycle, from the point when the [User 3 (Store)] key is pressed.
   The following message is displayed at the top of the screen.
   "Accept this images or cycle: Press STORE sw"
   "Retry: Press Cancel sw"
   If Post ECG is selected and there is no ECG sync, the message "It failed in the store of this images!" is displayed. The screen freezes.
2. Use the trackball to select the loop sector.
3. Check the image, and press the [User 3 (Store)] key.
   Images are saved to the system hard disk. A thumbnail is displayed on the right of the screen.
   To cancel video acquisition, press the [Cancel] key. Storage of data can also be canceled by pressing the [Freeze] switch, but past image data in the cine memory is not cleared.

4.3.3 Storing a Specified Range as a Video Clip Format Video: Pre Time/Pre ECG

You can store the video for the set range retroactively from the point [User 3 (Store)] key is pressed.

Prior confirmation

Assign [Acquisition Mode] to the function menu using Presets ([Preset Set-Up Menu > Menu-Function]) and select "Pre Time" or "Pre ECG".

Procedure

1. Open a real-time image and press [User 3 (Store)] key.
   The video is retroactively saved for the time period specified in Time Cycle or in ECG Cycle, from the point when the [User 3 (Store)] key is pressed.
   If Pre ECG is selected and there is no ECG sync, the message "It failed in the store of this images!" is displayed. The screen freezes.

4.3.4 Storing a Specified Range as a Video Clip Format Video: Post Time/Post ECG

You can save a video for the specified time period from the point when the [User 3 (Store)] key is pressed.

Prior confirmation

Assign [Acquisition Mode] to the function menu using Presets ([Preset Set-Up Menu > Menu-Function]) and select "Post Time" or "Post ECG".

Procedure

1. Open a real-time image and press [User 3 (Store)] key.
   Saves a moving image for the time period set in Time Cycle or ECG Cycle when [User 3 (Store)] is selected.
   If Post ECG is selected and there is no ECG sync, the message "It failed in the store of this images!" is displayed. The screen freezes.

4.3.5 Saving a Video for a Time Period

You can store the video for period of time from when the [User 3 (Store)] key is first pressed to when the [User 3 (Store)] key is pressed again.
In the Line format, there is a limit on the image modes that can be saved. Active images can be saved in the 1B, B/B, 4B and Flow modes. In Dual CF mode, Flow images can be saved.

Prior confirmation

Use preset ([Preset Set-Up Menu > Menu-Function]) to assign [Acquisition Mode] to the function menu and select "Manual".

Procedure

1. Open a real-time image and press [User 3 (Store)] key.
   The video is imported.
   To cancel video acquisition, press [Cancel].
   If the video acquisition time in Video Clip format exceeds 180 seconds, acquisition stops. In addition, the maximum video acquisition time in Line format varies depending on the settings used when the video is acquired.
2. Press the [User 3 (Store)]key.
   Image import ends.
   If the storage format is "Line" and Auto Loop (Tile) is set to "On", the image is not stored and the relevant range is played back in a loop.
   "Accept this images or cycle: Press STORE sw"
   "Retry: Press Cancel sw"
   To save images, press [User 3 (Store)] key.

4.3.6 Storing in Video Clip Format and the Same Range as Line Data

You can capture the video in Video Clip format (1B, 2B, 4B, Flow, or Dual CF), play back the same range in a loop, and store it as Line data.

Prior confirmation

1. Under the preset ([Preset Set-Up Menu > Store, Cine]), set Video Clip Auto Stop to "On".
2. Use preset ([Preset Set-Up Menu > Menu-Function]) to assign [Acquisition Mode] to the function menu and select "Manual".

Procedure

1. Store a video for however long you wish.
   Once you store the image, it freezes.
   If the message "The Cine memory is cleared. Video Clip Auto Stop is off." is displayed, try storing the video again.
2. Play the loop.
   a. If the T.B.F. display is not set to "Playback", press the [T.B.F.] key and set the T.B.F. display to "Playback".
   b. Roll the trackball upwards.
3. Press the [User 3 (Store)]key.
   The loop playback range (the range stored in Video Clip format) is stored in Line format

4.3.7 Storing a Specified Segment of B Mode Moving Images after Freeze

You can store the image currently in loop playback as a video. You can specify the loop playback range and store that period as a video.
Active images can be saved in the 1B, B/B, 4B and Flow modes.

Procedure

1. Press [Freeze] key and freeze the image.
2. Set the loop playback range
3. Roll the trackball up and play the loop.
4. Press the [User 3 (Store)] key during loop playback.
   The video for the loop playback range is stored in the specified format.
   If Video Clip format is selected, the loop playback range is played back from the start at 30 Hz and stored. When this playback ends, storage is complete and normal loop playback resumes.
   If Line format is selected, normal loop playback resumes once storage is complete.

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 device

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 disc

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 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 mistaken operation. 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

Records to an HD video recorder (HDD).
The basic operation for recording, pausing and stopping this device is explained below.
Before recording, input of patient information (ID, Name) is necessary. Assign [Rec] to Custom switch on preset (Preset Set-Up Menu > Custom SW).
NOTE: For information on how to operate from the DVD recorder, see the instruction manual that came with the DVD recorder.

Procedure

1. Place a DVD media in the DVD recorder by following instructions in the DVD recorder instruction manual.
2. Select the custom switch [Rec].
   -> Recording starts. During recording, a mark indicating that recording is in progress flashes on the top left of the monitor screen.

NOTE: Do not turn off the power of this device while recording is in progress. Cutting off the power may result in destruction of all files.

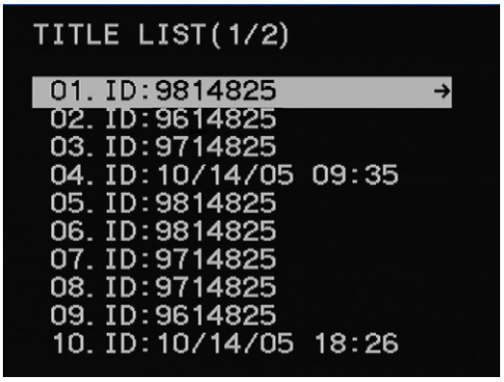
3. If you want to stop recording, select the custom switch [Rec].
   -> Recording stops. Pressing [Rec] again resumes recording.
   When recorded with a DVD recorder, title menus and chapter menus are automatically created and saved on the disk. These title menus and chapter menus are used as an index for selecting images to playback.
   A title is a recorded segment that starts when [Rec] is pressed (start recording) and ends when either [NEW PATIENT] or [EXT] is pressed (stop).
   It is possible to divide a title into multiple chapters by pressing [Rec] (pause), then pressing [Rec] again (restart), and repeating this operation for each chapter.

4.4.2 Playing back images from the HDD built into the HD Video Recorder

Operate the HVO-550MD (Sony) from the function menu for playback.

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 List on the Function Menu.
   The title list is displayed. The first thumbnail of the chapter menu is displayed as the thumbnail of the title menu.



3. Select an image file.
   Playing chapters in sequence

   a. Select the patient ID to observe.
      Images in the selected image file (e.g. Title 1) are played back sequentially from the start (e.g. Chapters 1, 2 then 3).
      During sequential playback, to skip to the next chapter, on the touch panel menu, turn the Rotary Encoder in Index Search in the function menu to the right.

   Specifying the index to playback
   Allows playback by specifying the Index (Chapter) image within an image file (title menu).

   a. Select the patient ID to observe using the trackball.

b. Roll the trackball to the right.
The Sub Title List is displayed.

c. Roll the trackball to the right.
The Chapter List is displayed.

d. Select the list to playback.
The selected Index is played back.

Skipping to the beginning of another patient during playback

a. Select the patient ID to observe using the trackball.

b. Rotate the Menu Rotary Encoder in Title Search in the function menu.
Move forward and backward to find the title of the patient you wish to skip to.

(1) Touch panel menu for playback

Menu	Description
Audio Volume	Adjusts the audio volume in the playback image.
Counter Search	Skips by a specified playback time in the selected image file.
Eject	Ejects the disk.
Erase (Format)	Erases all recorded images on a DVD+RW. Or, formats the disk.
Index Search	Skips to the start of each Index in the selected image file.
FF	The playback image is fast-forwarded.
Frame Back	Displays the previous frame (while paused).
Frame Forward	Displays the next frame (while paused).
Title Search	Skips to the starting image of an image file for a specified patient within the DVD.
Pause	Pauses playback.
Play	Plays the images.
Play Speed	Adjusts the playback speed.
REW	Plays back the image in the backward direction at 10x speed.
Stop	Stops playback.
List	Displays a list of titles recorded in the DVD.

4.5 Printing images

Images can be printed on a printers connected to the system. It is possible to print images whether real-time or while frozen.
Set the output size (only for digital printers) and format for each condition in advance by using the preset ([Common Preset] > [Print Select]).

4.5.1 Printing images from a real-time display

Prior confirmation

1. In the presets, ([Common Preset > Print (Realtime)]) set the print method in the Print (Realtime)/>Archive Group.

Procedure

1. Display an optimal image in the real-time display.
2. Press the [User 2 (Print)]key.
   The image displayed when [User 2 (Print)] key is pressed will be printed as a still image. If the message <""<FREEZE> the image, Then try again." is displayed, the current printer is not assigned to that button in the Presets (the image, Then try again."/ >[Common Preset > Print (Realtime)]). Press the button that is assigned to the current printer.

4.5.2 Printing frozen images

Prior confirmation

1. In the presets, ([Common Preset > Print (Freeze)]) set multiple print methods in the Print (Freeze)/>Archive Group 1.

Procedure

1. Search for the best image.
2. Press the [User 2 (Print)]key.
   The displayed image is printed as a still image.

Reference information

3.11 Search on page 94

5

Reviewing images

Images stored on the system hard disk can be played back, or saved to USB-connected media or DVD.Images that have been saved to a USB-connected media or DVD can be played back as well as saved to other media.

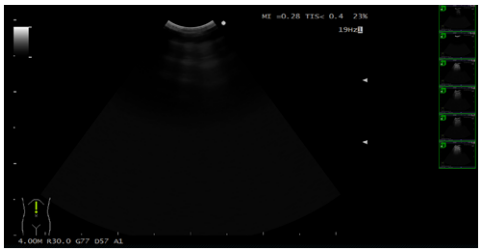
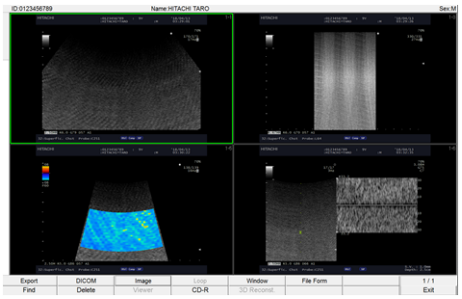
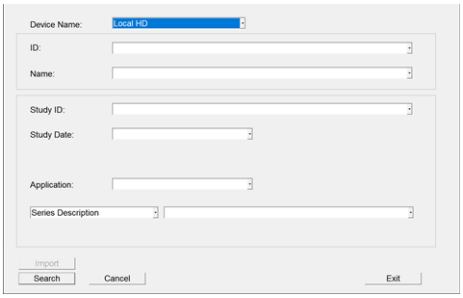
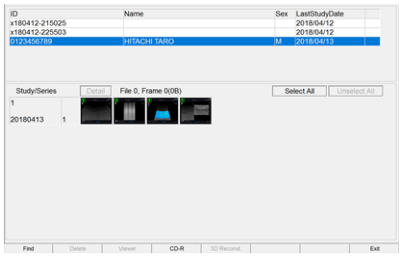
5.1 Playback image display
5.2 Searching for an image using the find screen
5.3 Copying images and documents to the system hard disk
5.4 Selecting Images
5.5 Changing the Layout of Images
5.6 Deleting images
5.7 Copying Images
5.8 Outputting images
5.9 Checking free space

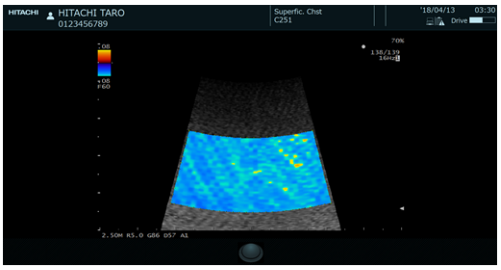
5.1 Playback image display

Review allows you to search and play for images recorded internally or externally, as well as save or transfer them externally.
NOTE: The HOME button is not available when the Review screen is displayed.

5.1.1 Review screen

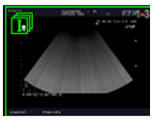
Image files saved internally or externally can be displayed on the following screen.

	Current View Display the images from the exam in progress. When an image is stored, a thumbnail of the stored image is displayed in the thumbnail area.
	Image Viewer Display a list of images selected in the Search Results View. Right after [Review] is tapped on the [Accessories] tab on the function menu, a list of saved images for the patient being examined is displayed. The image number is displayed at the upper right of the image.
	Find View Search necessary patient information.
	Search Results View Display the search results in the Patient List. Thumbnails of the patient selected in the Patient List are displayed in a list.

	Details View Displays exam data for the images selected in the Search Results View. It is displayed when [Detail] from the Search Results View is selected. If you select [Close] from the Details View, it returns to the Search Results View.
	Full Screen View In this view, selected images are displayed at the same size as when saved. The playback operation menu is displayed in the function menu.

Thumbnails

An image number and an icon indicating the data type are displayed on each thumbnail. The image number is displayed even when using Image Viewer.



: Image type icon

Displays the type of image with an icon.

""1-1"": Image number Displayed in the top-right corner of the thumbnail.

This is a serial number that indicates the series of images within each study.

The following icons are used to indicate image type.

	Still image (Image)
	Video (Line)
	Video (Video Clip)

Green	Images stored on the system hard disk
Light Blue	Images stored on external media
Blue	Images sent to a DICOM Storage Commitment Service Class server, and for which a response from the server has been received
Orange	Images sent to any server other than a DICOM Storage Commitment Service Class server
Yellow	Image obtained by DICOM QR

Root Menu

This menu is displayed at the bottom of the screen in the Details View, Image Viewer's or Search Results View.

Fig.1: Image Viewer

Fig.2: Search Results View, Details View

[Find]	Switches to the Find View
[Delete]	Deletes the selected image.
[Viewer]	Switches to the Image Viewer.
[CD-R]	Copies data in the CD-R Buffer to CD-R.
[Exit]	Returns to the scanning screen.
[Export]	Converts selected images in the Image Viewer to PC format and saves them to the specified destination
[DICOM]	Outputs selected images in the Image Viewer in the DICOM format
[Image]	Zooms, rotates and/or inverts images selected in the Image Viewer.
[Loop]	Plays back the selected image in the Image Viewer
[Window]	Sets the display layout for thumbnails and for switching pages.
[File Form]	Selects the image type displayed in the Image Viewer

5.1.2 Playing images

Plays back the selected image full screen in the Image Viewer.

Procedure

1. Select the desired images and press [Enter] key twice to play back.
2. Select [Full Screen] of [Window > Image Layout] from the Root menu.
   The image is played back. If multiple images are selected, the first image is played.

Function menu

The following menu items can be used from the [Full Screen] tabs when the function menu is opened in the Full Screen View.

Menu	Description
Playback Start/Stop	Plays back images on loop. Alternatively, this stops image playback.
Frame Prev/Next	When a moving image is stopped, this displays the frame before/after the current frame.
Loop Speed Down / Up	Reduces or increases loop playback speed.
Full Screen View	Returns to Image View.
Image Prev/Next	Plays the previous/next image when multiple images are selected.
Original	Discards images adjustments and reverts to the original image.
Return to US	Returns to the scanning screen.

Adjusting Images in the Full Screen View

For adjusting images displayed in full screen from video data acquired in the Line format. By using the preset ([Preset Set-Up Menu > Menu-Function]), make adjustments from the menus assigned to the Other tab of the function menu. The menus are shown below.

- [Gain]
- Display/hide color modes (Flow, Power Doppler, eFlow)
- [Dynamic Range]
- [Gamma Curve]
- [Saturation]
- [Rejection]
- [Graymap]
- [Baseline Shift (Color)]
- [Invert Color Map]
- [Priority Level]
- [Rejection (Color)]
- [Color Map (B/M)]
- [Color Map (Color)]
- [Display Priority]

Procedure

1. Display an image Full Screen.
2. Set [Playback] from the [Full Screen] tab on the function menu to "Stop".
3. Switch to the Other tab on the function menu, and select the adjustment menu.
   Make adjustments to the image. If you switch to another image or return to the Image Viewer, any image adjustments up to that point are discarded. Images that have been adjusted cannot be saved.

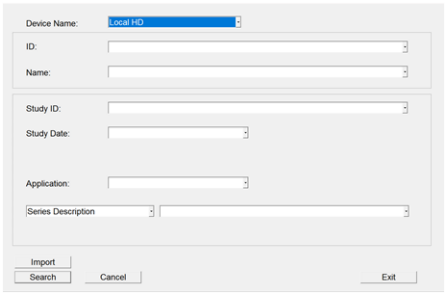
5.2 Searching for an image using the find screen

This function searches for images stored inside or outside the system.

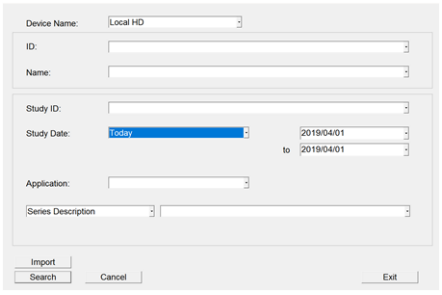
Procedure

1. Select [Review] from the [Accessories]]tab in the function menu.
   Image Viewer is displayed.
2. Select [Find].
   The display switches to the Find View.

   The screen differs according to the Auto Input (review) setting of the Presets ([Common Preset > Common2]).



When it is "Off"



When it is "On"

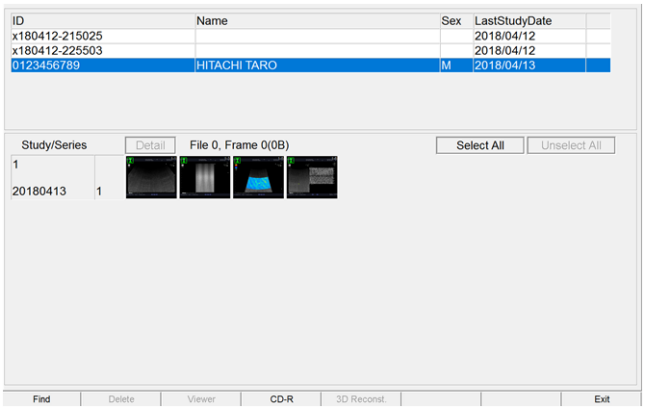
3. Set the search conditions.
   Table2: Search condition parameters

Device Name	Local HD
ID	Specifies the Patient ID Enter "*" after a keyword for wildcard searching.
Name	Specifies the Patient Name Enter "*" after a keyword for wildcard searching.
Study ID	Specifies the Study ID Enter "*" after a keyword for wildcard searching.
Study Date	If [Today], [Yesterday], [Last one week], [Last one month], [Date spec], or the preset [Auto Input (Review)] in Presets is [On], the date can be specified.
Application	Specifies the Application
Referring Phys	When these parameters are selected from a list, they are set as search conditions
Reporting Phys	
Sonographer	
Study Description	
Series Description	

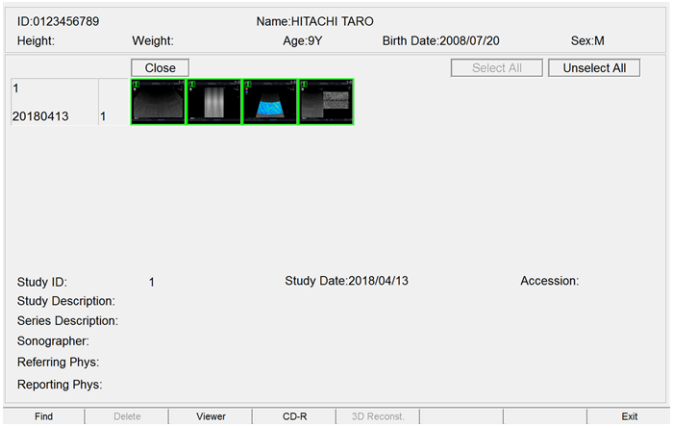
   Setting search conditions from the search history
   Select ▼ from the conditions fields.
   The drop-down list displays the text string of the latest 6 entries in each condition field.
   Erasing the search history
   Press [Cancel] Key on the Find View to display the pop-up menu and then select [History Clear].

4. Select [Search].
   Search results are displayed in the Patient List of the Search Results View.

5. Select the desired patient in the Patient List.
   Saved images of the selected patient are displayed in a list.



When you select an image, it is displayed with a green frame.
If one or more images are selected, the details of the Study/Series of that image can be displayed.If you select [Detail], it displays the Details View.



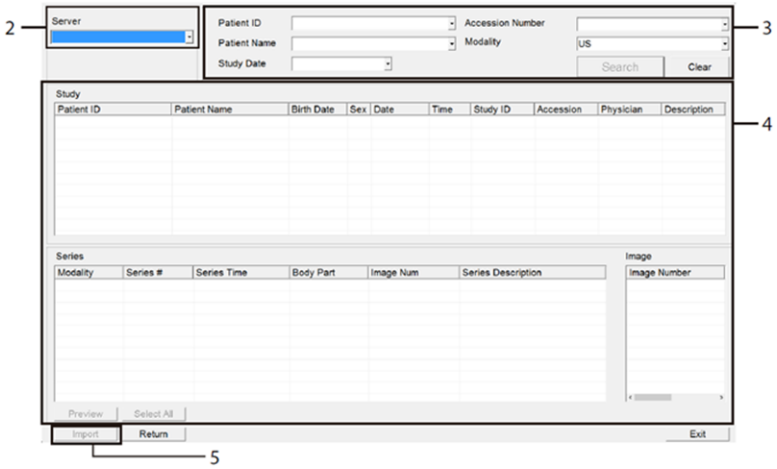
Select [Close] and it returns to the Search Results View.

5.3 Copying images and documents to the system hard disk

This function copies images or documents from the DICOM server to the system hard disk.

Procedure

1. Select [Import] in the Find View.
   The following screen is displayed.



2. Select the desired server (AE name).
3. Input search conditions, such as Patient ID, name, etc. and select [Search].
   The search results are displayed.
4. Select what you wish to copy.
   To copy a Study

   a. Select the Study name in the Study field.

   To copy a Series

   a. Select the Study name in the Study field.
   b. Select the desired Series name from the Series field.

   To copy an Image

   a. Select the Study name in the Study field.
   b. Select the desired Series name from the Series field.
   c. Select the desired Image name from the Image field.

   To verify images before copying
   If you select [Preview] you can preview the selected image(s).
5. Select [Import].
   This copies the content to the system hard disk.

5.4 Selecting Images

Selects the images to be played, copied, deleted, or printed.

Selecting One Image at a Time

Images can be selected one by one in either the Image Viewer or the Search Results View.

Procedure

- Select the desired image.

The selected thumbnail is displayed with a green frame.Information on the selected image in the Patient List in the Search Results View is displayed in green.
To cancel a selection, re-select the image. When selection is canceled, the green frame on the thumbnail disappears.

Selecting Images via the Study ID or a Series

In the Search Results View, images can be selected in units of Study ID or Series.
Information on the selected images in the Patient List is displayed in green.

- Selecting the images in a specific Study
  a. Select the desired Study name.
     All the images saved in that study are selected. With all the images selected, if you select the Study name again, it unselects all the images.
- Selecting a Series of images
  a. Select the desired Series name.
     All the images saved in that Series are selected. With all the images selected, if you select the Series name again, it unselects all the images.
- Selecting all images for a patient
  a. Select [Select All].
- Canceling all selected images
  a. Select [Unselect All].
  b. To unselect the selected images for all patients, select [Unselect All Patients]. To unselect all selected images of a patient whose images are displayed, select [Unselect This Patient].

5.5 Changing the Layout of Images

The following screen displays can be changed in the Image Viewer.

- Changes to the display layout
- Zoom the selected image.
- Rotate the selected image.
- Invert the selected image.

5.5.1 Changing the Display Layout

Procedure

1. From the Root menu, Select [Window > Image Layout].
2. Select the display layout.
   ◦ [1×2], [2×2], [3×3], [4×4], [5×5], [6×6]: Displays the number of rows x number of columns.

- [Full Screen]: If an image is selected, it is displayed in the Full Screen View.

5.5.2 Zooming images

Procedure

1. Select images.
2. From the Root menu, Select [Image > Zoom].
3. Select the zoom size.
   Zoom size
   Zooms in the range of X1/4, X1/3, X1/2, X1, X2, X3, X4 relative to the image display size.
   - [Zoom In]: Enlarges the selected image 1 step.
   - [Zoom Out]: Shrinks the selected image 1 step.
   - [Original]: Displays the select image at the original size.

   To display images to fit the size of the layout display
   From the Root menu, Select [Image > Reset Image].
   Displays at a size that fits the original layout.

5.5.3 Rotating Images

Procedure

1. Select images.
2. From the Root menu, Select [Image > Image Rotate].
3. Set the rotation angle.
   - [Rotate 180]: Rotates the selected image 180°.
   - [Right 90]: Rotates the selected image 90° to the right.
   - [Left 90]: Rotates the selected image 90° to the left.

   To revert to original orientation
   From the Root menu, Select [Image > Reset Image].
   Displays the image in its original orientation.

5.5.4 Inverting Images

Procedure

1. Select images.
2. From the Root menu, Select [Image > Image Direction].
3. Set the rotation angle.
   - [Up Down]: Inverts the selected image vertically.
   - [Right Left]: Inverts the selected image horizontally.

To revert to original orientation

From the Root menu, Select [Image > Reset Image].

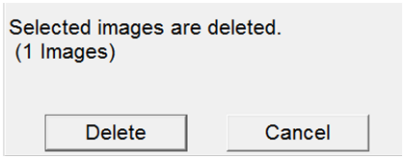
Displays the image in its original orientation.

5.6 Deleting images

5.6.1 Deleting Images in the Image Viewer

Procedure

1. Press [Freeze]key.
   This freezes the image.
2. Select the [Review] icon from the [Accessories] tab in the function menu.
3. Select images.
4. From the Root menu, Select [Delete].
   The following message is displayed.

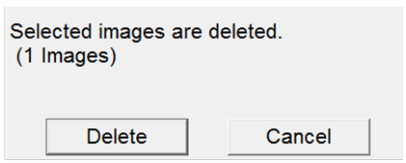


5. Move the pointer to [Delete], and press the [Enter] key.
   The selected images are deleted.

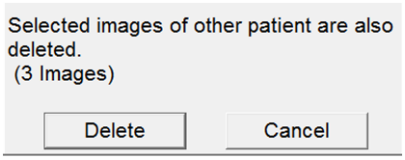
5.6.2 Deleting Images in the Search Results View

Procedure

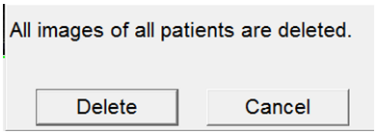
1. Press [Freeze]key.
   This freezes the image.
2. Select the [Review] icon from the [Accessories] tab in the function menu.
3. Select [Find].
4. Enter information on the patient you wish to select and press [Search].
   The Search Results View screen opens.
5. Delete the selected image.
   - Delete the selected images.
     Select image(s) and then [Delete] from the Root menu.



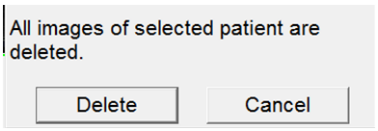
   - Deleting multiple sets of patient information:
     Select multiple images to delete, then [Delete] from the Root menu.



- To delete all images including information for other patients:
  Select thumbnail and Press [Cancel] key to open the pop-up menu and select [Delete All Patients].



- To delete all images within the selected patient information:
  Select thumbnail and Press [Cancel] key to open the pop-up menu and select [Delete This Patient].



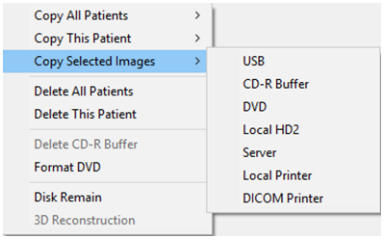
6. Select [Delete] on the confirmation message.
   The selected images are deleted.

5.7 Copying Images

Selected images in the Search Results View are saved to the specified device in the DICOM format.
If there are many images, use [Disk Remain] to check that there is sufficient capacity remaining in the destination.

Procedure

1. Select images in Search Results View.
2. Select the thumbnail and press [Cancel] key.
   A pop-up menu opens.



3. Select a menu from the pop-up menu.
   Pop-Up Menus

[Copy All Patients]	Copies all patient images in the Patient List.
[Copy This Patient]	Copies all images of the selected patient.
[Copy Selected Images]	Copies all selected images.

4. Select the storage destination.
   Storage Media

[USB]	Saves to USB flash memory.
[CD-R Buffer]	Save to CD-R Buffer. The maximum capacity is 640 MB. Before saving, check the disk capacity using [Disk Remain]. When the image file is larger than the capacity of the buffer, divide it and adjust to 640 megabytes or less.
[DVD]	Save to DVD.
[Local HD2]	Saves to the Local Storage2 area.
[Server]	Outputs data to a server.
[Local Printer]	Outputs to a local printer.
[DICOM Printer]	Outputs to a DICOM printer.

   Images meeting the specified conditions are saved to the specified storage destination.

Reference information

5.9 Checking free space on page 132

5.8 Outputting images

You can output images selected in the Image Viewer.
There are four ways to output images.

- Convert and save in PC format.
- Save or send in the DICOM format.
- Write data in the CD-R Buffer to a CD-R.
- Print the images.

This system can output images to media and to networks in the following formats.

Storage formats using Store	Storage format	Storage Media		Remarks
		Media	Server	
Still image Image	DICOM Palette	Yes	Yes	Some Viewers do not support image playback with Palette.*1 The following 3 types of data compression are possible. • Implicit Little Endian (non-compressed) • Explicit Little Endian (non-compressed) • Run-Length Encoding (reversible compression)
	DICOM RGB	Yes	Yes	The following 3 types of data compression are possible. • Implicit Little Endian (non-compressed) • Explicit Little Endian (non-compressed) • Run-Length Encoding (reversible compression)
	DICOM Monochrome2	-	Yes	
	DICOM JPEG	Yes	Yes	The JPEG compression ratio can be changed using JPEG Q Factor in Presets ([Common Preset > Common1]).
	JPEG	Yes	-	The JPEG compression ratio can be changed using JPEG Q Factor in Presets ([Common Preset > Common1]).
	BMP	Yes	-	
	TIFF	Yes	-	

Storage formats using Store	Storage format	Storage Media		Remarks
		Media	Server	
Video Line	Line	Yes	Yes	Cannot be displayed with DICOM Viewer software available on the open market. Images can only be displayed on the system. Varies with the server. For more details, contact your system administrator (IT personnel) for the hospital network.
	DICOM Palette	Yes	Yes	The following 3 types of data compression are possible. • Implicit Little Endian (non-compressed) • Explicit Little Endian (non-compressed) • Run-Length Encoding (reversible compression)
	DICOM RGB	Yes	Yes	
	DICOM JPEG	Yes	Yes	The JPEG compression ratio can be changed using JPEG Q Factor in Presets ([Common Preset > Common1]).
	AVI, MP4, MOV	Yes	-	
Video Video Clip	DICOM JPEG	Yes	Yes	The optional SOP-AR50-10 software is required. The compression ratio can be changed using JPEG Q Factor in Presets ([Common Preset > Common1]). Common1/>*2
	DICOM Monochrome2	-	Yes	The following 3 types of data compression are possible. • Implicit Little Endian (non-compressed) • Explicit Little Endian (non-compressed) • Run-Length Encoding (reversible compression)
	AVI, MP4, MOV	Yes	-	

*1

When saving still images with DICOM Palette, brightness, flow velocity, dispersion, and color information are saved separately.In the Flow mode, colors may not be displayed correctly in some Viewers.

*2

Video Clip videos can be saved in the DICOM format as a JPEG compressed MultiFrame file. However, to measure images saved when "Manual" is selected for [Acquisition Mode], it is necessary to confirm that the setting of the device used when

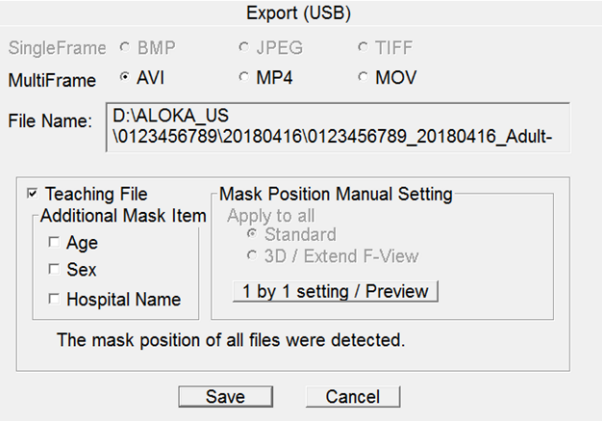
saving the images is the same as the setting of the device to display the images. If the settings are different, the measurement values may differ as well.

5.8.1 Converting and Saving Images in PC Format

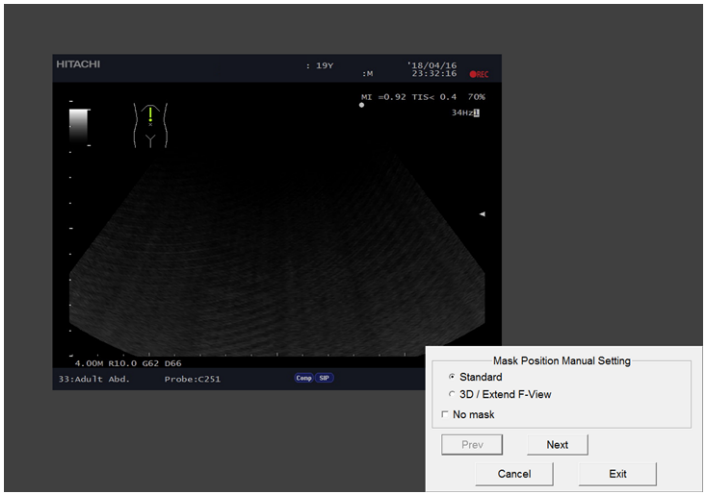
This function is for converting the file format of images selected in the Image Viewer to a PC format and saving them to a specified device.

Procedure

1. Select images in Search Results View.
2. Select [Viewer] to switch to the Image Viewer.
3. Select images.
4. Select [Export] from the Root menu and then select the storage destination ([USB], [CD-R Buffer], [DVD]).
   The Export dialog box is displayed.



5. Set the image file conversion format.
   Still image file formats
   Select one of the following: [BMP], [JPEG], or [TIFF].
   Video file formats
   Select one of the following: [AVI], [MP4], or [MOV].
6. If the image is in the system ([Local HDD]), configure the patient data display.
   To perform the conversion while displaying patient data
   Uncheck the Teaching File.
   To mask patient data before converting:
   a. Select the check box next to Teaching File.
      Patient ID and Patient Name are set to be masked.
   b. Select the check boxes next to other items to mask under Additional Mask Item.
   c. To check images or if some images are not to be converted (reports, etc.), select [1 by 1 setting / Preview].
      The image and Mask Position Manual Setting dialog box opens.



d. Check positions to delete. If mask settings are not necessary, check the No Mask box.

e. Check images one at a time by flipping through images with [Prev] or [Next].

f. Select [Exit].

7. Select [Save] from the Export dialog box.
The images are saved.

5.8.2 Converting and Saving Images in the DICOM Format

This function is for converting the file format of images selected in the Image Viewer to the DICOM format and saving them to a specified device.

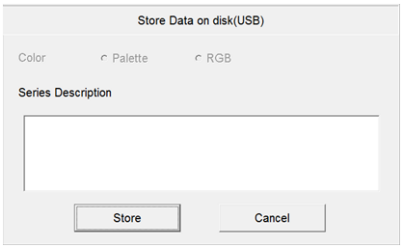
Procedure

1. Select images in Search Results View.
2. Select [Viewer] from the Root menu to switch to the Image Viewer.
3. Select images.
4. Change the file format of Line images if necessary.

   a. From the Root menu, Select [DICOM > DICOM File Type].

   b. Select the file format.

5. Select [DICOM] from the root menu and then select the storage destination ([USB], [CD-R Buffer], [DVD], [Local HD2]).
If [USB], [CD-R Buffer], [DVD], or [Local HD2] are selected, the Store Data on Disk dialog box opens.



6. Check the dialog box.

- Color: Configure the method for displaying color on still images.
- Series Description: Use the keyboard to enter comments about the exam series.

7. Press the [User 3 (Store)]key.
   Images are sent in DICOM format.

5.8.3 Transferring Images to Servers

This function is for converting the file format of images selected in the Image Viewer to the DICOM format and transferring them to a network device.

Procedure

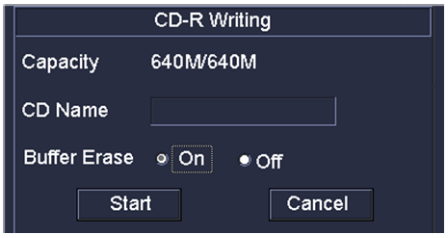
1. Select images in Search Results View.
2. Select [Viewer] from the Root menu to switch to the Image Viewer.
3. Select images.
4. Change the file format of Line images if necessary.
   a. From the Root menu, Select [DICOM > DICOM File Type].
   b. Select the file format.
5. From the Root menu, Select [DICOM > Server].
   The Send Data to File Server dialog box is displayed.
6. Check the dialog box.
   - Color: Configure the method for displaying color on still images.
   - Series Description: Use the keyboard to enter comments about the exam series.
7. Press the [User 3 (Store)]key.
   Selected images are sent in the DICOM format.

5.8.4 Writing to CD-R

This function writes images in the CD-R Buffer to a CD-R.
NOTE: Examinations cannot be performed during the CD writing process.

Procedure

1. Place a CD-R in the CD-R drive.
2. From the Root menu, Select [CD-R].
   The CD-R Writing dialog box is displayed.



3. Enter the CD Name.

4. Set up the Buffer Erase.
   - [On]: Data in the buffer is deleted after the images are written to the CD-R.
   - [Off]: Data in the buffer is saved as is. If making multiple copies of the CD, select Off.
5. Select [Start].
   Writing to the CD starts. A progress bar is displayed during the write process.
   NOTE: Do not turn off power to the system during the CD writing process (while the progress bar is displayed). It may cause damage to the CD drive connected to the system.

5.8.5 Printing images

You can output still images to a printer from those selected in the Image Viewer.

Procedure

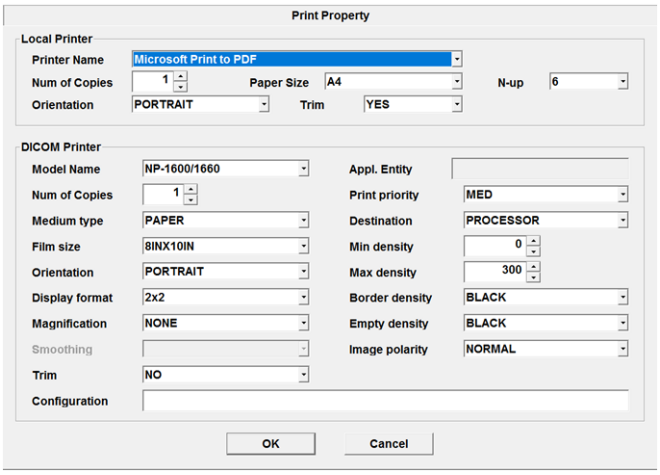
1. Select images in Search Results View.
2. From the Root menu, Select [Viewer].
   The display switches to the Image Viewer.
3. Select images.
4. Select [DICOM] from the Root menu, and select a printer ([DICOM Printer] or [Local Printer]).

Configuring printer properties

Use the steps below to configure local and DICOM printer properties.

Procedure

1. Switch to the Image Viewer.
2. From the Root menu, Select [DICOM > Printer Property].
   The Print Property dialog box is displayed.



3. Configure parameters as desired.
4. Select [OK].
   The settings are saved.

Local Printer

Item	Options	Description
Printer Name		For selecting Local printer.
Num of Copies	1 to 9	Sets the number of copies to print.
Paper Size	A4, B5, Letter	Sets the paper size.
N-up	Note, 1, 2, 4, 6, 9, 16	Sets the number of images to print on each page.
Orientation	LANDSCAPE	Sets the paper orientation to vertical
	PORTRAIT	Sets the paper orientation to horizontal.
Trim	NO	Sets to no margins between images.
	YES	Sets the margins between images when printing multiple images on a single page.

DICOM Printer

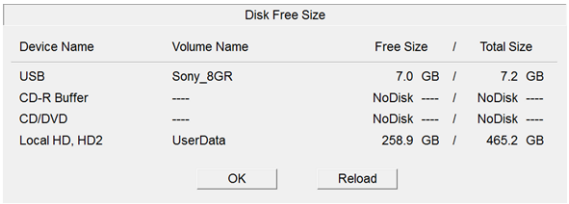
Item	Options	Description
Model Name		For selecting a DICOM printer.
Num of Copies	1 to 99	Sets the number of copies to print.
Medium type	BLUE FILM, CLEAR FILM, PAPER	Selects the print media.
Film size		Sets the paper size.
Orientation	LANDSCAPE	Sets the paper orientation to vertical
	PORTRAIT	Sets the paper orientation to horizontal.
Display Format	1×1 - 9×9	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	NO	Sets to no margins between images.
	YES	Sets the margins between images when printing multiple images on a single page.
Configuration		Enter a comment by using the keyboard. (Up to 64 characters)
Appl. Entity		Displays the name of the DICOM standard program.
Print priority	HIGH, MED, LOW	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.

5.9 Checking free space

You can check the free space on the system hard disk or connected media.

Procedure

1. Switch to the Search Results View.
2. Select the thumbnail and press [Cancel] key.
   A pop-up menu opens.
3. Select [Disk Remain].
   The Disk Free Size dialog box is displayed.



   If the media is changed while the dialog box is displayed, the remaining capacity of each media is updated when [Reload] is selected.
4. After checking the capacity, select [OK].

Reference information

5.2 Searching for an image using the find screen on page 117

6

Ending an exam

6.1 Ending an exam and starting the next exam
6.2 Ending an exam and starting the next exam on a MPPS server connection

6.1 Ending an exam and starting the next exam

When performing more than one study on the same patient, you can finish studies individually by selecting [End Study] from the [Accessories] tab on the function menu. To end all exams of the same patient, select [New Patient] key.

Procedure

- Press [New Patient]key.
  This ends the ongoing exam and displays the ID screen for entering new information.
- Select [End Study].
  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 a MPPS server is connected to the network, a dialog box is displayed at the end of the examination and updates the MPPS server by sending a message that the examination is complete.
    NOTE: To establish a connection between a Worklist server and an MPPS server within the hospital network, these servers need to have the network setup completed under Preset ([Common Preset > IHE/Auto Delete]). For more details, contact your system administrator for the hospital network.

NOTE: In the following cases, it is necessary to select [End Study] from the [Accessories] tab of the function menu. If you select [ID], you will be unable to end examinations individually.

- When more than one study is required for the same patient whose patient information was obtained from the Worklist server.
- When notifying the MPPS server of the end of the examination.

NOTE: If both a local printer and a DICOM printer are connected, print out images for each of the divided 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.

6.2 Ending an exam and starting the next exam on a MPPS server connection

6.2.1 When MPPS Server is not Connected

After connecting to the Worklist server, patient information can be acquired from the Worklist under the following conditions.

- When multiple examinations are conducted on a single patient.
- When an examination is resumed after an interruption.

Procedure

1. End the exam.

- To completely end an examination:
  Shut down the system.
- If the next patient is waiting:
  Press the [New Patient]key. This will end the present examination and display the ID input screen (Details).

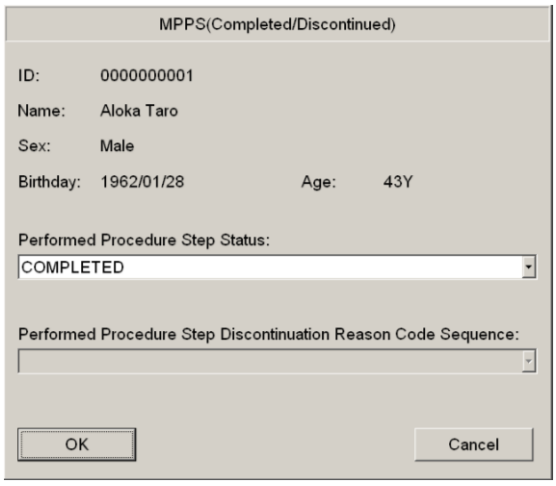
2. Enter the patient information for the next exam. Alternatively, select from the Worklist.

6.2.2 When Connected to MPPS server

If you connected the system to an MPPS server and stored images, be sure to send the completion notice to the MPPS server before starting the next examination. If you do not wish to store any images, proceed to the new examination without sending a notice to the server.
To establish connection to the Worklist server or the MPPS server, it is necessary to make network settings via Preset ([Common Preset > IHE/Auto Delete]). For further details, contact your network administrator

Procedure

1. End the exam.
   - When there are multiple studies for the same patient:
     Select the [End Study] icon from the [Accessories] tab in the function menu.
   - To end all studies for the same patient:
     Press the [New Patient]key.
   - To end after retrieving patient data from the Worklist, making preparations but not performing the exam.
     Press the [New Patient]key.
     The MPPS dialog box is displayed.



2. Select "COMPLETED" from the Performed Procedure Step Status area.
3. Select [OK].
   The system notifies exam end to the MPPS server, and a new ID input screen opens.
4. From the Worklist, select the patient information or the examination information for the next examination.

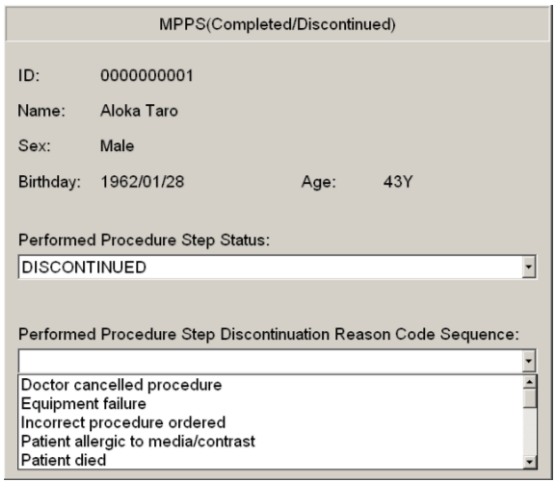
To return to an examination on the same patient:
Re-select the patient from the Worklist.

(1) Interrupting an exam

If you connected the system to an MPPS server and stored images, be sure to send the interruption notice to the MPPS server before starting the next examination. If you do not wish to store any images, proceed to the new examination without sending a notice to the server. The interrupted examination can be resumed later by retrieving that data.
To establish connection to the Worklist server or the MPPS server, it is necessary to make network settings via Preset ([Common Preset > IHE/Auto Delete]). For further details, contact your network administrator

Procedure

1. End the exam.
   - When there are multiple studies for the same patient:
     Select the [End Study] icon from the [Accessories] tab in the function menu.
   - To end all studies for the same patient:
     Press the [New Patient]key.
   - To end after retrieving patient data from the Worklist, making preparations but not performing the exam.
     Press the [New Patient]key.
     The MPPS dialog box is displayed.



2. Select "DISCONTINUED" from the Performed Procedure Step Status in the MPPS dialog box.
3. Select the reason for the interruption from Performed Procedure Step Discontinuation Reason Code Sequence.
   Reasons for interrupting an exam

Options	Description
[Doctor cancelled procedure:]	The doctor discontinued the exam.
[Equipment failure:]	The system failed.
[Incorrect procedure ordered:]	The wrong exam was scheduled.

Options	Description
[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.

4. Select [OK].
   The system notifies exam end to the MPPS server, and a new ID input screen opens.
5. From the Worklist, select the patient information or the examination information for the next examination.
   Resuming an examination
   Re-select the patient information from the Worklist.

6.2.3 Sending a DICOM SR File

Ultrasound measurement results need to be converted to the DICOM SR format (hereafter referred to as DICOM SR files) before sending them to the DICOM SR server.
You must have DICOM SR compatible software (SOP-AR50-21) in order to create DICOM SR files.
DICOM SRfiles can be created and sent from abdominal measurements (Abdom), obstetrical measurements (OB), gynecological measurements (GYN), cardiological measurements (Cardio), and vascular measurements (Vascular).
To establish connection to the DICOM SR server, go to Preset ([Common Preset > DICOM-SR])and make network settings.

(1) Sending a DICOM SR file of the measurement results from an ongoing examination

Prior confirmation

Configure the preset to automatic transfer
Under the preset ([Common Preset > DICOM-SR]), set SR Auto Creation to "On".

Procedure

1. After completing an ultrasound examination, press [New Patient] key.
   Examination results are converted to DICOM SR files and sent to the DICOM SR server.

(2) Creating a past DICOM SR file and sending it together with the current file

Procedure

1. After the ultrasound examination is complete, verify the measurement results on the measurement report screen.
2. Select ▼ of the examination date in the upper-right corner of the report screen.
3. Select the examination date from drop-down list.
   The report screen for the specified examination date is displayed.
4. Select [Output] on the upper right corner of the report screen.
5. Select [Create SR] from the Select Device dialog box.
6. Select [OK].
   A DICOM SR file is created of the ultrasound measurement results on the specified date.
7. After completing an ultrasound examination, press [New Patient] key.
   Both the past and the current DICOM SR files are transferred to the DICOM SR server.
   The icons for the thumbnails change to blue or orange, depending on the type of image.

7

Managing patient data

NOTE: If user authentication is set, the operations in this chapter are limited to users with Level 1 access permissions.

7.1 Patient Data Management screen
7.2 Importing patient information
7.3 Exporting patient information
7.4 Deleting patient information
7.5 Editing patient information

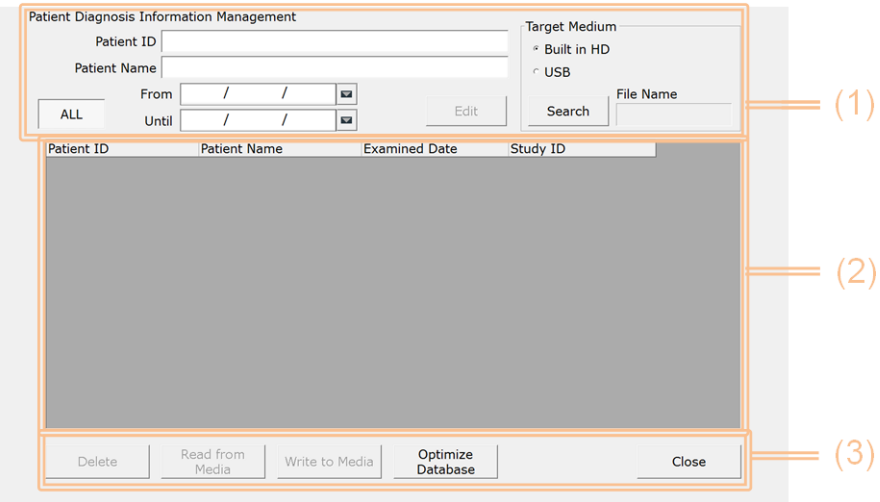
7.1 Patient Data Management screen

Patient data can be managed on the screen below to do the following:

- Read from the system hard disk, USB flash memory.
- Write to USB flash memory.
- Delete if it is on USB flash memory.

Procedure

- Select the Data Management tab on the ID screen.
  The following patient Data Management screen is displayed.



(I) Search area
(II) Search results list area
(III) Control area

(I) Search area

Item name	Description of item
Search	Searches within media specified by Target Medium according to the search conditions.
Patient ID	Enter the Patient ID that is to be the search condition.
Patient Name	Enter the search conditions and Patient ID.
Target Medium	Select the media to search. Media that can be selected includes [Built in HD] and USB-connected media.
File Name	If the search target is USB-connected media, the selected file name is displayed.
(From) - (Until)	Enter the search conditions and search date. You can set the date by entering text or by specifying it from a calendar.
All	Selects all of the data in the list. Selecting [All] again reverts to all being deselected.
Edit	Allows you to edit patient information selected in the list.

(II) Search results list area

Item name	Description of item
Patient ID	Display Patient ID.
Patient Name	Displays the patient name.
Examined Date	Displays the exam date.
Study ID	Display Study ID.

(III) Control area

Item name	Description of item
Delete	Deletes the patient information selected in the list.
Read from Media	Loads the patient information in the USB flash memory into the system.
Write to Media	Saves the patient information in the system that is selected in the list to USB flash memory. This function is available only when the Built-in HD is designated as the Target Medium.
Optimize Database	Optimizes the database and increases the access speed to the database when searches are taking too long due to an excess of patient data stored on the system.
Close	Closes the Data Management function, and returns to the ID input screen (Details).

7.2 Importing patient information

You can read patient information from USB-connected media to the system hard disk.

Procedure

1. On the IDscreen, select [Data Management].
2. From Target Medium, select [USB].
3. Select the desired file from the File List, and select [OK].
4. Set the search conditions.
   Search conditions
   Search by Patient ID, Patient Name, From (Date), and/or Until (Date). If you enter 1 or more conditions or click All, the system searches for all patient data that includes the search conditions.
5. Select [Search].
   The screen displays a list of matching results from the files selected.
6. Select the relevant patient information
   To load all patient information
   a. Select [All].
      All of the patient information on the list is selected.
   b. To cancel selections, select [All] again.

7. Select [Read from Media].
   The selected patient information is loaded onto the system hard disk.

7.3 Exporting patient information

You can write patient information to USB-connected media from the system hard disk.

Procedure

1. Select [Data Management] on the ID screen.
2. Select [Built in HD] from Target Medium.
3. Select [Search].
   The screen displays a list of matching results from the files selected.
4. Select the relevant patient information
   To load all patient information
   a. Select [All].
      All of the patient information on the list is selected.
   b. To cancel selections, select [All] again.
5. Select [Write to Media].
6. Enter the file name.
7. Select [OK].
   If all patient information is selected
   The message "You are going to write all study data. Does it write, although processing cannot be interrupted?" is displayed.
   If you select [OK], the system saves the patient information.If you select [Cancel], the system returns to the Data Management screen without saving the patient information.
   - All the selected data is stored in 1 file.
     A message will appear if the selected data is larger than the available memory on the USB flash memory. In such case, re-select the data to save.

7.4 Deleting patient information

You can delete patient information from USB-connected media or the system hard disk.

Procedure

1. Select [Data Management] on the ID screen.
2. Set the search conditions.
   Search conditions
   Search by Patient ID, Patient Name, From (Date), and/or Until (Date). If you enter 1 or more conditions or click All, the system searches for all patient data that includes the search conditions.
3. Select the desired media via Target Medium.

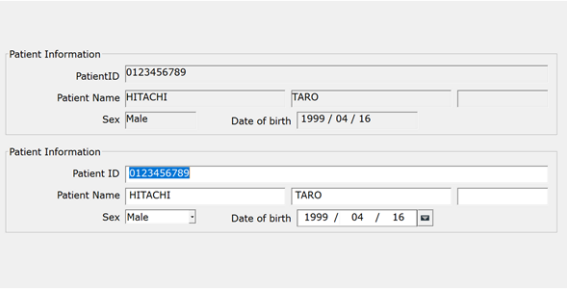
4. Select [Search].
   The screen displays a list of matching results from the files selected.
5. Select the relevant patient information
   To load all patient information
   a. Select [All].
      All of the patient information on the list is selected.
   b. To cancel selections, select [All] again.
6. Select [Delete].
   The message "Are you sure to delete these selecting data? Waveform data and stored images are also deleted." is displayed.
7. Select [OK].
   The selected data is deleted.
   Select [Cancel] and the Data Management screen reappears.

7.5 Editing patient information

Patient information in the system can be corrected on the Data Management screen. The items that can be corrected are the Patient ID, Patient Name, Sex and Date of Birth.
NOTE: Patient information can only be edited by persons logged in with user authentication level 1.

Procedure

1. On the ID screen, select [Data Management] on the ID screen.
2. From Target Medium, select [Built in HD].
3. Select the relevant patient information.
   To batch correct patient data with the same Patient ID:
   Select more than one set of the patient information.
4. Select [Edit].
   The correct ID dialog box opens. Patient ID prior to correction is displayed in the upper fields for reference. Enter new patient information in the lower fields



   If the message "Two or more different Patient ID has been selected. Please select only one Patient ID." opens, multiple, different patient ID have been selected. Select [OK] and select the patient data again.
5. Correct the patient data.
   To correct the Patient ID:

Patient ID that has already been registered cannot be used. Register a new Patient ID.

6. Select [OK].
   The following message will be displayed: "The patient data and image data information are changed."
7. Select [OK] to finish correction of patient information.
   If a message is displayed

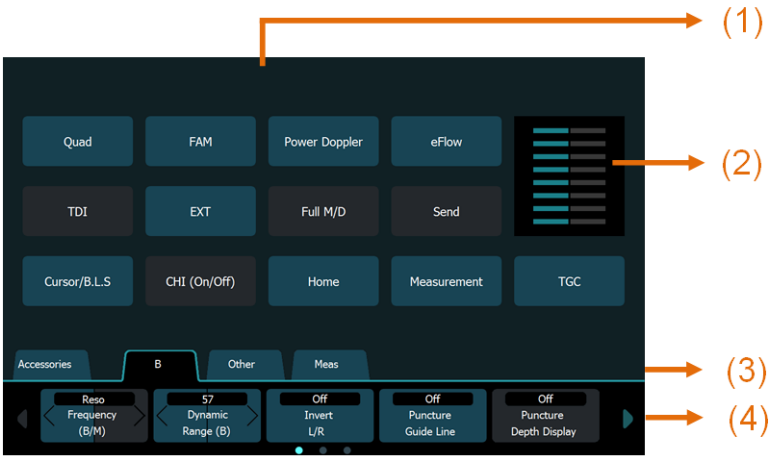
   - "Input Patient ID already exists. Please input other Patient ID."
     The Patient ID has already been registered.Select [OK] and enter the Patient ID again.
   - "Birth Date Error : ex.2018/01/01" (after ex. is today's date.)
     The Date of Birth was not entered is properly. Select [OK] and enter the date again.

8

Touch panel menus

8.1 Types of menus
8.2 Software buttons and custom switches
8.3 Function menus

8.1 Types of menus



Touch panel display example
(1) Software Buttons, (2) TGC, (3) tabs, (4) Function menus

Menus are broadly classified into Software buttons (1 in figure above), TGC (2 in figure above) and function menus (4 in figure above).
Selecting a Software button starts the corresponding function.
TGC snapshots are static. They are always visible on the screen.When the TGC button is selected, the TGC screen is displayed on the touch panel. In TGC snapshots, the current setting of TGC is displayed.
Function menus (4 in figure above) group modes and functions into tabs for display.
You can assign functions to Software buttons and the function menu with device preset Set-up settings.

Reference information

Chapter 1, Basic controls on page 15
1.2.1 Touch panel on page 23
For methods of assigning functions to each menu, see below.
9.6.11 Menu-Function on page 235

8.2 Software buttons and custom switches

8.2.1 Software Buttons

This section explains functions that can be assigned to software buttons.

Button Name	Description
FAM	Displays the FAM cursor.
TDI	Switches the display to the TDI mode.
Cursor/B.L.S	Moves or sets the cursor and the baseline of the Doppler pattern. Moves or sets the cursor with the trackball and the baseline of the Doppler pattern with [Pointer] Rotary Encoder.

Button Name	Description
Send	1. Highlights the text string of the comment you entered, and moves the text string with the trackball. 2. Sends the active applied measurement results to a report.
CHI	The CHI mode starts, and the CHI Menu is displayed in the function menu area. Selecting CHI again exits CHI mode.
Quad	Switches to the 4B display.
Full M/D	Switches the display from the B/M mode to the full-screen M mode. Alternatively, this switches the display from the B/D mode to the full-screen D mode.
EXT	Displays images from external connected media.
eFlow	Switches the display to the eFlow mode.
Power Doppler	Switches the display to the Power Doppler mode.
Home	Switches the display to Home screen.
Measurement	Displays the measurement menu on the function menu.

8.2.2 Custom Switch Menu

Setting custom switches and menu

You can register or change the items to be set in the custom switches, and function menu using the preset.

The display in the function menu should be set by area.

Setting area	Preset with settings to be changed
Custom switch (User switch area)	Preset Set-Up Menu > Custom SW
Custom foot switch	Preset Set-Up Menu > Custom-Foot SW

Custom Switch/Custom Foot SW

The following table shows the functions that can be assigned to custom switches and custom foot switches. These functions cannot be assigned to the function menu.

Menu name	Description
Invert	This function reverses the left and right sides of the image when a B mode image and a D mode image are displayed.
Single	Switches the display to the single B mode screen.
Dual	Switches to the 2B display.
Quad	Switches to the 4B display.
M	Switches the display to the B/M mode.
FAM	Displays the FAM cursor.
PW	Switches the display to the PW mode.
CW	Switches the display to the CW mode.
Color Flow	Switches the display to the Color Flow mode.
Power Doppler	Switches the display to the Power Flow mode.
eFlow	Switches the display to the eFlow mode.

Menu name	Description
TDI	Switches the display to the TDI mode.
Zoom	Displays part of the B mode image in enlarged form.
Focus (Shift)	Switches trackball functions to Focus.
Body Mark (On/Off)	Displays the body mark menu.
Cursor/B.L.S	Moves or sets the cursor and the baseline of the Doppler pattern. Moves or sets the cursor with the trackball and the baseline of the Doppler pattern with [Pointer] Rotary Encoder.
Scan Area	Adjusts the scan area and flow area of B mode images.
Store	Saves a frozen or search image.
Search	Displays images stored in the cine memory.
Review	Switches between Current View and Image Viewer
Archive Group 1	Outputs a displayed image to the device specified in the User 2 (Print).
Comment	Activates/deactivates comment input.
EXT	Displays images from external connected media.
Full M/D	Switches from the B/M mode image to the full-screen M mode image. Alternatively, this switches the image from the B/D mode to the full-screen D mode.
Select	Selects the active screen when two or more images (2B, B/M, etc.) are displayed.
Measurement	Displays the measurement menu on the Function menu.
+	Starts the measurement assigned to this switch.
ID	Displays the ID screen.
Freeze	Switches between the real time display and the still image display.
End Study	Notifies the server of the end of the examination.

8.3 Function menus

The Function menu displays functions in menu format and it can be used to set necessary conditions on the Main Monitor.
Menu selection can be accomplished by touch on Touch Panel or by the corresponding menu Rotary encoder below each menu item.
In addition to the [Accessories] tab, the function menu has tabs for each of the following modes, and menu items that have been assigned in advance are displayed on them.

- B
- D
- eFlow
- M
- CF
- Other
- FAM (optional)
- Power Doppler
- Meas
- CHI
- F.I

You can use Presets ([Preset Set-Up Menu > Menu-Function]) to change assignments to menu items other than for [Accessories] and[FAM].
For details on the assignment of functions to [Meas], see the separate manual "Measurements".

Menu items that can be assigned to the Function menus are explained below.

8.3.1 Function menus: B

This section explains function menus classified as B mode.

Menu	Options	Item
Active (B1)		Makes the image at top-left active in the 4B mode.In the 1Bmode or the 2B mode, if Cine Memory Division is "4", this makes 1 active.
Active (B2)		Makes the image at top-right active in the 4B mode.In the 1B mode or the 2B mode, if Cine Memory Division is "4", this makes 2 active.
Active (B3)		Makes the image at bottom-left active in the 4B mode.In the 1B mode or the 2B mode, if Cine Memory Division is "4", this makes 3 active.
Active (B4)		Makes the image at bottom-right active in the 4B mode.In the 1B mode or the 2B mode, if Cine Memory Division is "4", this makes 4 active.
AGC (B)	Off	Turns off tissue boundary emphasis.
	1 to 15	Sets the level of tissue boundary emphasis.
AIP (Adaptive Image Processing)	Off	Exits AIP.
	On	Displays AIP images. This menu item combines a process for determining and emphasizing the existence of boundaries that have different properties with a process for removing speckle noise to display the structure and changes in characteristics of tissues more clearly.
AIP Edge Sens (AIP Edge Sensitivity)	1 to 8	Sets the sensitivity level for detecting boundaries that have different properties when [AIP] is set to "On". The larger the number, the more sensitive.
AIP Level	1 to 6	When [AIP] is "On", this function selects a pattern that combines the settings for AIP Edge Sens and AIP Resolution. The combination pattern is set with the Presets ([Preset Set-Up Menu > Image-B, M2 > AIP Level (B)], [AIP Level (FmT)], [AIP Level (WbT)]).
AIP Resolution	1 to 8	Changes the level for producing a state with good spatial resolution when [AIP] is set to "On". Lower the level to achieve a state with good removal of speckle noise.
Angle (Compound)	5 to 30	Sets the angle of images to be superimposed with Compound in increments of 5°. NOTE: The compound angle varies depending on the probe.

Menu	Options	Item
Angle Sel (NE)	-40 to +40	Changes the angle of the Graphic Line in units of 5° while Needle Emphasis is set to "On". NOTE: The maximum angle value varies depending on the probe.
Auto-optimizer		Optimizes those items, from among the Gain (B [M]) and Dop Vel./Baseline items, that have been set by using the presets. Specify the items to be optimized by selecting [Preset Set-Up Menu > Auto-optimizer].Use Brightness Level to adjust the target value for Gain (B [M]). NOTE: The HOME button is not available during auto-optimizer operation.
Beam Processing	Multi	Scans with multiple beams received simultaneously to improve the frame rate.
	Single	Scans with the standard number of scanning lines.
Beam Steer (B)	-30 to 30	This menu item enables information about the area being examined to be obtained by electronically transmitting and receiving the ultrasound beam in the oblique direction. You can specify the deflection for the B mode image in increments of 5°. NOTE: The beam steering angle differs depending on the probe.
Beam Steer Reverse (B)		Switches the angle set in Beam Steer (B) to an angle on the opposite side or the 0° position.
Biopsy Select		Selects the puncture adapter to be used when the system is connected to a probe that is compatible with multiple puncture adapters.
Brightness Level	Auto	Automatically sets the target value of the average brightness for Auto-optimizer. Calculates the average brightness every time the image is frozen. This menu item sets, as the target value of the average brightness, the average value of a certain number of moves for each combination of probes.
	40 to 80	Sets the target value of the average brightness for Auto-optimizer.

Menu	Options	Item
Color Map (B/M)	Gray	Displayed without adding color to B mode and M mode images.
	A	Displays an image adding from orange to blue.
	B	Displays an image with blue color.
	C	Displays an image with blue that are slightly weaker than those of B.
	D	Displays an image adding orange.
	E	Brown brightness characteristics.
	F	Brown brightness characteristics that are weaker than E.
	G	Blue and yellow brightness characteristics.
Compound	Off	Turns off Compound.
	On	Displays images more accurately by scanning from multiple directions to reduce blind spots, and by reducing artifacts that depend on beam direction. NOTE: [Compound] cannot be selected while operating in the B/M or B/D modes or during trapezoidal scanning.
Dynamic Range (B)	36 to 96	Sets the contrast of B mode images.
FmT (Filter-method Tissue Harmonic Imgaing)	Off	Turns off FmT.
	On	Turns on FmT. This mode receives ultrasound waves that have double the frequency of the waves that are transmitted in the B mode or in the M mode, and performs ultrasonic image processing by using the second harmonics reflected from tissues. Using secondary harmonics enables a clear image that is free from artifacts such as side lobes.
Focus (B)	Auto 1P	Sets one focal point near the center of the screen.
	Auto 2P(@)	Automatically sets one fixed focal point at the top of image and one movable point at the center.
	Auto 2P	Sets 2 focal points evenly distributed across the entire image.
	Auto 3P	Automatically sets three focal points across the entire image.
	Manual	B mode images can have transmission points that are divided into a maximum of 8 by the electronic probe. Up to 4 of these points can be set as focal points.

Menu	Options	Item
Frequency (B/M)	Penet	Sets the transmission frequency to a low value at startup. This improves sensitivity.
	Std	Sets the transmission frequency to a slightly low value at startup. This improves sensitivity slightly.
	Reso	Sets the transmission frequency to a slightly high value at startup. This improves resolution slightly.
	High	Sets the transmission frequency to a high value at startup. This improves resolution. NOTE: The number of steps that can be switched varies with each probe.
FTC (B)	Off	Turns off the edge enhancement of the B mode image.
	On	Turns on the line drawing-like edge enhancement of the B mode image.
Image Rotation	0° 90° 180° 270°	Sets an angle to rotate a B mode image, using its center as the axis of rotation, in 90° increments. The marks associated with the image (active mark, cursor, etc.) rotate along with the image.
Invert L/R	Off	Displays the B mode image in the normal orientation. Active marks are displayed on the right.
	On	Inverts the B mode image laterally. Active marks are displayed on the left.
Invert U/L		Inverts the B mode image vertically.
IP Regist (B)	IP1 to IP8	Selects the number for IP Select (B), which registers changed settings for Persistence, Dynamic Range, AGC, Relief, Smoothing, and Graymap.
IP Regist (B) Initialize		Resets the settings registered in IP Regist (B) Registration to their factory defaults.
IP Regist (B) Registration		Registers the current settings for Persistence, Dynamic Range, AGC, Relief, Smoothing, and Graymap to the number selected for IP Regist (B).
IP Select (B)	1 to 8	Select the patterns of combinations of the settings of the following menus. • Persistence • Dynamic Range • Relief • Graymap • AGC • Smoothing

Menu	Options	Item
Lateral Gain	Linear	Sets all gain settings to be lined up at the bottom edge.
	V1	Raises both ends and sets a gain in V-shape with the center being at the bottom edge.
	V2	Sets a gain in V-shape in which both ends are higher than those of V1 and the center is at the bottom edge.
	V3	Sets a gain in V-shape in which both ends are higher than those of V2 and the center is at the bottom edge.
Line Density (B)	Low	Image priority is on frame rate (low scanning line density).
	Med	An image in the middle of High and Low.
	High	Image priority is on picture quality (high scanning line density).
Maunal Focus (B) 1	F1 to F8	Sets the focus position of Manual Focus(B) 1 when Focus (B) is set to Manual.
Maunal Focus (B) 2	Off	Sets the focus position of Manual Focus(B) 2 when Focus (B) is set to Manual.
	F1 to F8	
Maunal Focus (B) 3	Off	Sets the focus position of Manual Focus(B) 3 when Focus (B) is set to Manual.
	F1 to F8	
Maunal Focus (B) 4	Off	Sets the focus position of Manual Focus(B) 4 when Focus (B) is set to Manual.
	F1 to F8	
NE Correlation	Low	Displays Puncture needle echo residual image shorter than the [Med] setting.
	Med	Displays puncture needle echo residual image.
	High	Displays Puncture needle echo residual image longer than the [Med] setting.
NE Sharpness	Low	Set to display a thick puncture needle echo.
	Med	Set to display a medium-thick puncture needle echo.
	High	Set to display a narrow puncture needle echo.
Needle Emphasis	Off	Turns off Needle Emphasis.
	On	Starts up Needle Emphasis. When Needle Emphasis is turned On, the Graphic Line (green dotted line) may be displayed. The visibility of the puncture needle echo is improved as the puncture needle approaches the graphic lines.
Persistence	Off	Turns off the correlation with the previous frame.
	1 to 15	Sets the level of correlation with the previous frame in order to obtain a smoother image.
Persistence Type	Auto	Sets the frame correlation setting according to the frame rate of the B mode image.
	Manual	Allows frame correlation to be set as desired.

Menu	Options	Item
PRF Limit	Off	Changes the PRF to correspond to the display range, and scans at the fastest frame rate.
	On	Does not change the PRF even if the imaging depth becomes shallower. This prevents the display of artifacts, which occur when the pulse repetition frequency is increased.
Puncture Angle Select		Selects the puncture guideline to be displayed when there are multiple puncture guidelines.
Puncture Depth Display	Off	Hides the depth display from the puncture guideline.
	On	Measures the depth to the position of the arrow and displays it alongside the puncture guideline. NOTE: The depth display numbers are rough values for reference. Before puncturing, check for error in the distance to the tip of the puncture needle using a water tank or other means.
Puncture Guide Line	Off	Clears the puncture guideline from the screen.
	On	Displays the puncture guideline on the screen to allow observation of the B mode image during puncturing. The puncture guideline is displayed in dots. The dot interval is displayed as 0.5 cm or 1.0 cm depending on the display depth or zoom magnification. When the direction of the image is inverted, the puncture guideline is also inverted accordingly. NOTE: The HOME button is not available when the Puncture Guide Line is displayed.
RD Image Rotation	0° to 345°	Rotates the displayed image in increments of 15° by using a probe that supports 360° radial displays.
Relief (B)	Off	Turns off the edge enhancement of the B mode image.
	Low	Sets the edge enhancement at a low level.
	Med	Sets the edge enhancement at a medium level.
	High	Sets the edge enhancement at a high level.
Reset Brightness		Resets the average brightness that was acquired with the Auto-optimizer.
Reverse (NE)		Switches the angle set in Angle Sel (NE) to an angle on the opposite side.
SIP (Silky Image Processing)	Off	Turns off SIP.
	On	Turns on SIP. Displays a smooth image by combining processing to emphasize the boundaries between tissues and processing to remove noise.
SIP Effect		Selects the level of image processing from type "A", "B", or "C" when SIP is set to "On".

Menu	Options	Item
Smoothing (B)	Off	Turns off the correlation between scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.
Sound Speed	1400 to 1650	Sets the speed of sound. The standard speed of sound is 1530 m/s.
TGC Curve	Normal	Applies the current TGC slider settings.
	Custom	Applies the TGC slider positions registered using TGC Registration. NOTE: This can be selected when TGC in the Presets ([Preset Set-Up Menu > Image-B, M1]) is set to "Fixed".
TGC Curve Initialize		Resets the settings for the TGC slider positions registered in TGC Registration to their factory defaults.
TGC Registration		Registers the current TGC slider settings.
Trapezoidal Scanning	Off	Turns off Trapezoidal Scanning.
	On	Displays an ultrasonic image in a trapezoidal shape by using a linear probe, and enlarges the field of view in the direction of the azimuth. NOTE: [Trapezoidal Scanning] cannot be selected when the B/M and B/D modes are operating simultaneously, or when Compound is operating.
Trapezoidal Scanning Angle	5 to 30	Adjusts the angle in increments of 5 degrees when Trapezoidal Scanning is set to "On"
WbT (Wideband Tissue Harmonic Imgaing)	Off	Turns off WbT.
	On	Starts WbT.It displays clearer B-mode and M-mode images by removing more extra components of the second harmonics than FmT.

8.3.2 Function menus: M

This section explains function menus classified as M mode.

Menu	Options	Description
AGC (M)	Off	Turns off the tissue boundary emphasis of the M mode image.
	1 to 15	Sets the level of tissue boundary emphasis of the M mode image.
Dynamic Range (M)	36 to 96	Sets the contrast of M mode images.

Menu	Options	Description
Echo Erase	Off	Displays M mode images and physiological signals without modification.
	1 to 19	Sets the Echo Erase region (area of the M mode image to be erased from underneath) in increments of 1 step. The M mode image and physiological signals are displayed in the same area. For this reason, it may be difficult to see physiological signals in some cases. In such cases, deleting the M mode image from underneath with Echo Erase makes it easier to see physiological signals.
Focus (M)	Auto	Changes whether the focus position for the M mode image is set automatically or manually.
	Manual	
FTC (M)	Off	Turns off the edge enhancement of the M mode image.
	On	Sets the edge of the M mode image to be emphasized by accentuating the edges and highlighting the contours like a line drawing.
IP Regist (M)	IP1 to IP8	Selects the number for IP Select (M), which registers changed settings for Dynamic Range (M), AGC (M), and Relief (M).
IP Regist (M) Initialize		Resets the settings registered in IP Regist (M) Registration to their factory defaults.
IP Regist (M) Registration		Registers the current settings of Dynamic Range (M), AGC (M) and Relief (M) to the number selected for IP Regist (M).
IP Select (M)	1 to 8	There are 8 patterns to choose from. The patterns that combine the settings of the Dynamic Range, AGC and Relief on M mode are selected.
Manual Focus (M)	F1 to F8	Sets the focus position when Focus (M) is set to Manual.
Relief (M)	Off Low Med High	Sets the edge enhancement at a Low/Med/High level. When FTC (M) is turned "On" in the M mode, Relief (M) can be set or changed but does not change on the screen.When FTC (M) is canceled, an image that corresponds to the set level is displayed.
Sweep Speed (M)	25.0 33.3 50.0 66.7 100.0 150.0 200.0	Selects the sweep speed (mm/s) of M mode. The marks are displayed on the M mode image every 0.5 seconds. With a real-time display, the marks are displayed only at the top and bottom edges of the image. The marks are displayed at fixed intervals from the top edge to the bottom edge during the freeze mode.

8.3.3 Function menus: D

This section explains function menus classified as D mode (PW and CW).

Menu	Options	Description
Angle Correct. Reverse		With the cursor as the origin, this menu item switches the direction of the angle set by using Angle Correction and Auto Angle Correction in the opposite direction (the Off position) around the origin.
Angle Correction	0° to 80°	Sets the insonation angle of incidence in increments of 1° to correct the flow velocity value. When the set insonation angle exceeds 80 degrees, the angle cannot be corrected because the error is too large.
Auto Angle Correction		Automatically corrects the flow velocity value that corresponds to the angle of incidence of the Doppler beam. This function can be selected during cursor display in either the B (Color)/D or 1B (Color) modes.
Base Line Reset (D)		Resets the baseline of the Doppler pattern to the factory default position.
Baseline Position	Unchanged	Does not change the baseline.
	0 to 16	Sets the shift position of the baseline when compensating automatically for the Doppler velocity range and baseline shift.
Base Line Shift (D)	-16 to 16	Moves the baseline of the Doppler pattern. The Doppler pattern without aliasing phenomena can be displayed.
Beam Steer (D)	-30 to 30	Sets the deflection of the D mode image in increments of 5°. This menu item enables information about the area being examined to be obtained by electronically transmitting and receiving the ultrasound beam in the oblique direction. This is used for areas such as the carotid artery where the ultrasound beam and a bloodstream direction cross perpendicularly. NOTE: The configurable range varies depending on the probe.
Beam Steer Reverse (D)		Switches the angle set in Beam Steer (D) to an angle on the opposite side or the 0° position.
Color Map (D)	Gray	The D mode image is displayed without adding color.
	A	Displays an image adding from orange to blue.
	B	Displays an image with blue color.
	C	Displays an image with blue that are slightly weaker than those of B.
	D	Displays an image adding orange.
	E	Brown brightness characteristics.
	F	Brown brightness characteristics that are weaker than E.
	G	Blue and yellow brightness characteristics.

Menu	Options	Description
Doppler Auto Trace	Off	Exits Real time Doppler Auto Trace. Erases trace lines during freeze.
	On	Traces a Doppler waveform in real-time D mode and displays the Doppler measurement results for the most recent single heartbeat. Re-displays the erased trace lines during freeze.
Doppler Gamma	1 to 16	Sets the contrast of D mode images.
Filter Control (D)	Auto	Controls with a filter value corresponding to the velocity range. This mode removes strong noise that is generated in the low frequency range by the motion of the heart wall. This is used when blood flow cannot be displayed due to noise.
	Manual	Controls with a fixed filter value.
Focus (D)	Auto	Sets the focus position of the D mode image near the sample volume and reference mark.
	Manual	Sets the focus position of the D mode image manually.
Freeze Trigger	Off	Displays the trace line without modification.
	On	Displays the trace line and the measurement values upon freeze when Real Time Doppler Auto Trace is used.
Gamma Curve (D)	Off	Specifies the setting that does not suppress weak signals.
	1 to 7	Sets the brightness characteristics of the Doppler pattern. Displays a clear Doppler pattern by suppressing weak signals.
Image Polarity (D)	Posi	Displays a positive D mode image.
	Nega	Displays a negative D mode image.
Invert Spectrum	Off	Blood flow heading toward the probe is displayed above the baseline and blood flow heading away is below it.
	On	Inverts a D mode image vertically with reference to the baseline.
IP Regist (D)	IP1 to IP8	Selects the number for IP Select (D), which registers the current settings for Dop.Gamma, Gamma Curve (D), and Resolution.
IP Regist (D) Initialize		Resets the settings registered in IP Regist (D) Registration to their factory defaults.
IP Regist (D) Registration		Registers the current settings for Dop.Gamma, Gamma Curve (D), and Resolution to the number selected for IP Regist (D).

Menu	Options	Description
IP Select (D)	1 to 8	There are 8 patterns that is combined with the settings of Dop. Gamma, Gamma Curve and Resolution on the D mode to choose from.
Manual Focus (D)	F1 to F8	Sets the focus position when Focus (D) is set to Manual.
Ref. Frequency (D)	Penet	Sets the transmission frequency of the probe to a low value at startup. This improves sensitivity.
	Std	Sets the transmission frequency of the probe at a slightly low value at startup. This improves sensitivity slightly.
	Reso	Sets the transmission frequency of the probe at a slightly high value at startup. This improves resolution slightly.
	High	Sets the transmission frequency of the probe at a high value at startup. This improves resolution. NOTE: The number of steps that can be set varies depending on the probe.
Sample Volume	0.5 to 20.0	Sets the size of the sample gate that extracts the signals from the B mode image in the PW Doppler mode. The sample gate size is set in units of 0.5 mm for 0.5 to 5.0, in units of 1 mm for 5.0 to 10.0, and in units of 2 mm for 10.0 to 20.0.
Spectrum Resolution	Time	Improves resolution with a Doppler spectrum in the time direction.
	Frequency	Improves resolution with a Doppler spectrum in the frequency direction.
Sweep Speed (D)	25.0 33.3 50.0 66.7 100.0 150.0 200.0	Selects the sweep speed (mm/s) of D mode.
Trace Direction	Toward	Sets the trace range of Real Time Doppler Auto Trace above the baseline.
	Away	Sets the trace range of Real Time Doppler Auto Trace below the baseline.
	Both	Sets the trace range of Real Time Doppler Auto Trace to span across the baseline.
	Auto	Sets the trace range of Real Time Doppler Auto Trace to a larger range, as determined based on the baseline position.

Menu	Options	Description
Trace Locate		Changes the display position for the Real Time Doppler Auto Trace results.
Trace Smooth	Low	Sets a low degree of smoothness for the trace line of Real Time Doppler Auto Trace.
	High	Sets a high degree of smoothness for the trace line of Real Time Doppler Auto Trace.
Trace Threshold	0 to -22	Adjusts the trace line detection level for Real Time Doppler Auto Trace in increments of 1 dB.
Transfer Menu Auto Display		Displays a menu for measurement memory transfer that is used for transferring results of Real Time Doppler Auto Trace to applied measurements.
Vel. Range (D)		Sets the velocity range of the D mode. The velocity range varies depending on the mode and operating conditions.
Wall Filter (D)	1 to 12	Sets the number of steps when "Auto" is selected for Filter Control (D).
	50Hz	Sets the filter value at 50 Hz when "Manual" is selected for Filter Control (D).
	100Hz	Sets the filter value at 100 Hz when "Manual" is selected for Filter Control (D).
	200Hz	Sets the filter value at 200 Hz when "Manual" is selected for Filter Control (D).
	400Hz	Sets the filter value at 400 Hz when "Manual" is selected for Filter Control (D).
	800Hz	Sets the filter value at 800 Hz when "Manual" is selected for Filter Control (D).
	1600Hz	Sets the filter value at 1600 Hz when "Manual" is selected for Filter Control (D).

8.3.4 Function menus: Color

Menus related to each of the modes, Color Flow, Power Doppler, eFlow, TDI Color and TDI PowerDoppler are shown below.

Menu	Options	Description
Accumu. Imaging (Color Accumulation Imaging)	Off	Turns off Accumu. Imaging.
	On	Displays color pixels which are held for the period of time specified by Accumu. Time. In addition, if there is brightness information that is higher than the displayed brightness, the displayed brightness is updated.

Menu	Options	Description
Accumu. Time (Accumulation Time)	1 sec	Holds color pixels for 1 second when Accumu. Imaging is "On".
	2 sec	Holds color pixels for 2 seconds when Accumu. Imaging is "On".
	3 sec	Holds color pixels for 3 seconds when Accumu. Imaging is "On".
	Continuous	Retains color pixels continuously when Accumu. Imaging is "On".
B Gain Comp (Color)	-30 to 30	Sets a correction value (dB). The correction value is set to the difference in B gain between when the color Doppler mode is On and when the color Doppler mode is Off.
Base Line Reset (Color)		Resets the baseline to the center.
Baseline Shift (Color)	-64 to 64	Moves the baseline of the forward and reverse flows. Removes the display of aliasing by shifting the baseline. Only the Color Flow mode can be changed.
Beam Steer (Color)	-30 to 30	Sets the deflection of the Color mode image in increments of 5°. This menu item enables information about the area being examined to be obtained by electronically transmitting and receiving the ultrasound beam in the oblique direction. This is used for areas such as the carotid artery where the ultrasound beam and a bloodstream direction cross perpendicularly. NOTE: The configurable range varies depending on the probe.
Beam Steer Reverse (Color)		Switches the angle set in Beam Steer (Color) to an angle on the opposite side or the 0° position.
Color Line Correlation	Off	Turns off Color Line Correlation.
	Low	Sets the degree of color line correlation to low.
	High	Sets the degree of color line correlation to high.
Color Map (Color)		*Color Map (Color)* on page 167
Color Map Type (Color)		Selects the color coding from the color menu selected under Color Map (Color).
Directional	Off	Displays images in the Power Doppler mode, eFlow mode or TDI Power Doppler mode.
	On	Displays images by adding color based on the directionality in the currently displayed Power Doppler, eFlow, or TDI Power Doppler mode. It is set separately in Power Doppler, eFlow and TDI Power Doppler.

Menu	Options	Description
Display Priority	Color	Sets to color display the area where a black-and-white image and a color flow velocity display overlap.
	Both	Displays both black-and-white and color images.
	Color TDI	Sets to color display the area where a black-and-white image and a color flow velocity display overlap in the TDI Color Flow mode. This function is suitable for observing velocity information of the movement of the myocardium, etc. NOTE: To display the [Display Priority] menu in the TDI Color Flow mode, set "B" as the TDI Display Type in Presets ([Preset Set-Up Menu > TDI-Color]).
	Both TDI	Cuts off color information and displays black-and-white images preferentially if the low flow velocity components of the color information are large.
Display Priority B/W Level (Color)	0 to 127	Sets the brightness level for displaying black-and-white information. If the echo is stronger than the specified brightness, the black-and-white echo is displayed as is. Reducing the set value can remove clutter signals, but also reduces the blood flow signal.
Display Priority Color Level (Color)	1 to 127	Sets the brightness level for displaying color information. If the flow velocity is higher than the set value, color is displayed as is. Increasing the set value can remove clutter signals, but also reduces the blood flow signal.
Dual CF	Off	Turns off Dual CF, and displays the Color Flow mode.
	On	The B+Color Flow mode image is displayed on the right, and the B mode image is displayed on the left. This function is also available in the Power Doppler mode and eFlow mode. After images are frozen, the display is switched to the 1B mode display. However, the left and right images cannot be searched separately after the images are frozen.
Dynamic Range (Color)	Low Med High	Sets the power (dynamic range: dB value) per display gradation sequence at a Low/Medium/High level in Power Doppler and eFlow NOTE: This function cannot be set in TDI Power Doppler.
Flow Edge	Off	Turns off Flow Edge.
	On	Performs post-processing of color pixel information and displays color flow so that it does not extend beyond the tissues. This function is not available in eFlow. NOTE: Sufficient sensitivity may not be obtained in some cases, such as with deep blood vessels.

Menu	Options	Description
Frame Rate Accelerator	Off	Turns off Frame Rate Accelerator. Select this function when greater importance is attached to time resolution, such as in the case of the heart.
	On	Interpolates the color display between frames to create a smooth color image. This function is suitable for images that have a low frame rate, such as blood flow in the abdominal region.
Invert Color Map	Off	The flow component approaching the probe is displayed in reddish hues, and the component moving away is displayed in bluish hues.
	On	Inverts the colors from Color Map (Color) settings in the Color Flow mode. The flow component approaching the probe is displayed in bluish hues, and the component moving away is displayed in reddish hues. This can be set with Color Flow, Directional Power Doppler, Directional eFlow, TDI Color and TDI Directional Power Doppler. This operates even after the image is frozen.
IP Regist (Color)	IP1 to IP8	Selects the number for IP Select (Color), which registers the changed settings for Persistence, Smoothing, and Wall Filter (Color Flow).
IP Regist (Color) Initialize		Resets the settings registered in IP Regist (Color) registration to their factory defaults.
IP Regist (Color) Registration		Registers the current settings for Contrast (Color Flow), AGC (Color Flow), and Relief (Color Flow) to the number selected for IP Regist (Color).
IP Select (Color)	1 to 8	There are 8 patterns that is a combination of the settings of Persistence,Smoothing, Wall Filter (Color) to choose from.
Line Density (Color)	-4 to 4	It selects a combination of Line Density (scanning density) for both black-and-white and color images. Displays an image with emphasis on image quality when the value is increased. Displays an image with emphasis on frame rate when the value is lowered. NOTE: The number of steps that can be set varies depending on the probe.
Packet Size	Low Med High	Sets to a Low/Medium/High number of transmissions used to display blood flow. If the number of transmissions is large, the sensitivity is improved, but the frame rate falls.
Persistence (Color)	Off	Turns off the correlation with the previous frame.
	1 to 15	Establishes the correlation with the previous frame to obtain a smoother image. To observe fast-moving organs such as the heart, specify a lower correlation.

Menu	Options	Description
Priority Level	-8 to 8	It simultaneously adjusts the brightness of both black-and-white and color images based on Disp Priority B/W Level (Color) and Disp Priority Color Level (Color) set with Display Priority. Increases the brightness level of black-and-white and color images when it is set in the + direction. Decreases the brightness level of black-and-white and color images when it is set in the - direction.
Ref. Frequency (Color)	Penet	Sets the reference frequency (transmission frequency) of the probe to a low value at startup. This improves sensitivity.
	Std	Sets the reference frequency (transmission frequency) of the probe at a slightly low value at startup. This improves sensitivity slightly.
	Reso	Sets the reference frequency (transmission frequency) of the probe at a slightly high value at startup. This improves resolution slightly.
	High	Sets the reference frequency (transmission frequency) of the probe at a high value at startup. This improves resolution. NOTE: The number of steps that can be switched varies with each probe.
Rejection (Color)	0 to 31	The processing for erasing color information from low velocity components is called Rejection (Color). Use this processing to remove noticeable wall-motion noise. (Note that in this case low velocity blood flow will also be removed.) The level of noise reduction can be set in 32 levels. This function can also be used after the image is frozen.
Smoothing (Color)	Off	Turns off Smoothing (Color).
	1 to 15	Sets the level of correlation. This displays a smooth image by performing post-processing of color pixel information.
Vel. Range (Color)		Sets the blood flow velocity range in the Color Flow mode. The velocity range varies depending on the mode and operating conditions.
Wall Filter (Color)	1 to 6	Sets the level for removing low flow-velocity components when many clutter signals (wall motion noise) are displayed because of the influence of the heart wall or other tissue.
	1 to 2	In the TDI mode, the level for removing low flow velocity components can be set in 2 levels.
	1 to 8	In the eFlow mode, the level for removing low flow velocity components can be set in 8 levels.

Menu	Options	Description
Wall Motion Reduction	Off	Turns off Wall Motion Reduction.
	1 to 15	Sets the level for removing wall motion noise. The higher the level, the greater the noise reduction. Setting the level too high may delete blood flow information.

Color Map (Color)

Mode	Color Map	Color Map Type	Description
Color Flow TDI Color	Abdom	A to E	Selects the color distribution for the abdominal region.
	Cardio	A to E	Selects the color distribution for the cardiac region.
	Vascular	A to E	Selects the color distribution for the peripheral vessels.
	User	A to E	Selects other color distributions.
Power Doppler TDI Power Doppler	Power	A to E	Selects the color distribution suitable for Power Doppler.
	D-Power	A	Selects the color distribution suitable for Directional Power Doppler.
	User	A to E	Selects other color distributions.
eFlow	eFlow	A to E	Selects the color distribution suitable for eFlow.
	D-eFlow	A	Selects the color distribution suitable for Directional eFlow.
	User	A to E	Selects other color distributions.

8.3.5 Function menus: DSD

This section explains function menus classified as D.S.D.

Menu	Options	Description
DSD (ECG)	Off	Ends the D.S.D. (ECG) mode.
	On	Starts D.S.D. (ECG) mode. Displays in slow-motion, synchronized to the ECG R-wave.
DSD (Time)	Off	Ends the D.S.D. (Time) mode.
	On	Starts the D.S.D. (Time) mode. Provides slow-motion display of image data stored in memory (frame rate).
DSD Refresh		Refreshes the slow-motion image without changing setting value.
DSD Refresh Timing	1 to 10	Set the memory size for D.S.D (Time) mode in increments of 1 step and changes the refresh interval.

Menu	Options	Description
DSD Speed	1/1	Plays in slow motion at the same speed as real time. The image is refreshed at each R wave interval.
	1/2	Plays in slow motion at half the speed of real time. The image is refreshed once every two R wave intervals.
	1/3	Plays in slow motion at one third the speed of real time. The image is refreshed once every three R wave intervals.
	1/4	Plays in slow motion at one quarter the speed of real time. The image is refreshed once every four R wave intervals.
	1/10	Plays in slow motion at one tenth the speed of real time. The image is refreshed once every ten R wave intervals.

8.3.6 Function menus: FAM

This section explains function menus assigned to the FAM tab.
NOTE: These function menus cannot be assigned by using the Presets ([Preset Set-Up Menu] > [Menu-Function]).

Menu	Options	Description
Active FAM disp. off		When multiple FAM cursors are displayed, the current active FAM cursors are deleted.
Dynamic Range (FAM)	1 to 16	Sets the contrast of M mode images. NOTE: Adjustment is not possible in FAM mode from Review in full-screen display.
FAM Cursor Number	2	Sets the FAM cursors to 2.
	3	Sets the FAM cursors to 3.
Gamma Curve (FAM)	Off	The brightness characteristics of the free angular M mode image are not changed.
	1 to 4	Sets the brightness characteristics of an M mode image to a brightness setting in the range from 1 to 4. NOTE: Adjustment is not possible in FAM mode from Review in full-screen display.
MAG (FAM)	x0.5 x0.75 x1 x1.5 x2	When Trace Fit is "Off", this sets the display range of an M mode image based on the size of the B mode image to x0.50/x0.75/x1.00/x1.50.
PSAX (Parasternal Short Axis View)	Off	Displays and sets the FAM cursor one by one.
	On	Simultaneously displays multiple FAM cursors for the left ventricle minor axis.

Menu	Options	Description
Sweep Speed (M)	25.0 33.3 50.0 66.7 100.0 150.0 200.0	Selects the sweep speed (mm/s) of FAM mode.
Trace Fit	Off	The display range of an M mode image can be changed by using MAG (FAM).
	On	Automatically adjusts MAG (FAM) so that it fits in an M mode image display area. The MAG (FAM) display range is fixed at "×1.5" when two FAM cursors are displayed.The MAG (FAM) display range is fixed at "×2" when three cursors are displayed.

8.3.7 Function menus: Full Screen

This section explains function menus assigned to the Full Screen tab.
NOTE: These function menus cannot be assigned by using the Presets ([Preset Set-Up Menu] > [Menu-Function]).

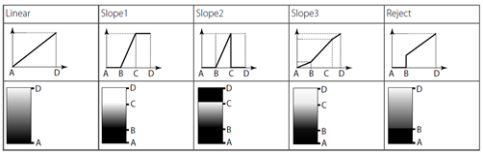
Menu	Options	Description
Playback Start/Stop	Start	Plays the images on a loop. Alternatively, stops image playback.
	Stop	
Frame Prev/Next	Prev	When a video is stopped, this displays the previous or next frame of the displayed frame.
	Next	
Loop Speed Down/Up	Down	Changes the loop playback speed.
	Up	
Image Prev/Next	Prev	Plays the previous or next image when multiple images are selected.
	Next	
Full Screen View		Selecting this returns the display to the Image Viewer screen.
Original		Discards images adjustments and reverts to the original image.
Return to US		Returns to the scanning screen.

8.3.8 Function menus: Other

This section explains function menus classified as Other.

Menu	Options	Description
Acquisition Mode	Pre Time	Sets the capture range of videos to be between the time immediately before selecting [User 3 (Store)] and the set time (1 to 16 seconds).
	Post Time	Sets the capture range of videos to be between the time immediately after selecting [User 3 (Store)] and the set time (1 to 16 seconds).
	Pre ECG	Sets the capture range of videos to be between the R-wave captured immediately before pressing [User 3 (Store)] and the R-wave captured immediately before the set number of heartbeats (1 to 10 heartbeats).
	Post ECG	Sets the capture range of videos to be between the R-wave captured immediately after pressing [User 3 (Store)] and the R-wave captured immediately before the set number of heartbeats (1 to 10 heartbeats).
	Manual	Sets the capture range of videos to be between the time immediately after selecting [User 3 (Store)] and when [User 3 (Store)]is selected again.
Area Lock	Off	Displays the flow area without following the movement of the Doppler cursor or the M-mode cursor.
	On	Displays the flow area in accordance with the movement of the Doppler cursor or the M-mode cursor. This setting causes the flow area to move up, down, left or right when the Doppler cursor is moved, so that the sample volume remains roughly at the center of the flow area. When a B/M mode flow image is displayed, the flow area moves according to the motion of the M-mode cursor.
Audio Volume	0 to 10	Sets the volume of the Doppler sound and the beep sound of ECGR-waves. The larger the value, the louder the volume. Select 0 to turn off the sound.
B Refresh	1 2 4 6 8	This function sets the time interval for rewriting the B mode image to 1, 2, 4, 6, or 8 seconds when B Color/M Color, B/PW and B Color/PW are operating simultaneously.
	B Refresh may not operate, depending on the combination of settings made in Presets ([Preset Set-Up Menu > DISP-D, Color]). **Reference information** *B Refresh Table* on page 175	
B/* Format	L/R	Displays images side by side in the B/Sweep mode
	U/L	Displays images above and below in the B/Sweep mode.

Menu	Options	Description
B/Sync Mode	Off	Ends the B/Sync mode, and displays the B mode image.
	On	Displays the B mode image on the left and the B mode image above the ECG sync mark on the right.
Beam Steer (B/C/D)	-30 to 30	This menu item enables information about the area being examined to be obtained by electronically transmitting and receiving the ultrasound beam in the oblique direction. Sets the deflection of the B mode image, Flow Area, and D cursor in increments of 5°.
Beam Steer (C/D)	-30 to 30	This menu item enables information about the area being examined to be obtained by electronically transmitting and receiving the ultrasound beam in the oblique direction. Sets the deflection of the Flow Area and D cursor in increments of 5°.
Beam Steer Reverse (B/C/D)		Switches the angle set in Beam Steer (B/C/D) to an angle on the opposite side or the 0° position.
Beam Steer Reverse (C/D)		Switches the angle set in Beam Steer (C/D) to an angle on the opposite side or the 0° position.
Body Mark Location		Changes the display position of the body mark.
Body Mark Reset		Resets the display position of the body mark to its factory default.
Character Size	Normal	Displays comments in a standard font size.
	Large	Displays comments in double width font size.
Counter	Off	Ends the timer count and hides the timer counter.
	On	Starts counting at the same time the timer counter is displayed.
Counter (B)	Off	Stops timer counting and hides the timer counter.
	On	Starts counting at the same time the timer counter is displayed.
Data Format	Line	Saves data in the Line format when storing videos.
	Video Clip	Saves data in the MJPG format when storing videos.
ECG Cycle	1 to 10	Sets the period of time for storing videos according to the number of heartbeats (cycles, integer values). This function can be applied when the Acquisition Mode is set to Pre ECG or Post ECG.
ECG Display	Off	Turns off the ECG waveform display on the screen.
	On	Turns on the ECG waveform display on the screen.
ECG Posi	1 to 32	Sets the position of the ECG waveform.
ECG Sens	1 to 32	Sets the sensitivity of the ECG waveform.

Menu	Options	Description
ECG Sync	Off	Displays the B mode image without modification.
	On	Displays only the B mode image above the ECG sync mark on the ECG waveform.You can obtain B mode images of any desired time phase while observing the time phase of the ECG waveform.
Element Select		Switches the probe when a probe with more than one transducer is connected to one probe connector.
Gamma Curve	Linear	Uses all 64 gradations in the black-and-white images to be displayed in 64 gradations. All echoes are displayed with the brightness corresponding to their intensity.
	Slope 1	Displays echoes lower than the brightness extension range at minimum brightness and echoes higher than the brightness extension range at maximum brightness.
	Slope 2	Displays echoes lower and higher than the brightness extension range at minimum brightness
	Slope 3	Displays changes in the brightness of the echoes lower and higher than the brightness extension range with 1/4 compression
	Reject	Display echoes that are lower than the set level at minimum brightness.
	Table1: Illustrations A: Minimum brightness, B: Setting position at Rejection, C: Setting position at Saturation, D: Maximum brightness The range between B and C indicates the brightness extension range. 	
Graphic Color	A B C D E User	Sets the color scheme of text and graphics displayed on the screen to Type A/B/C/D/E/User (setting of Graphic Editor).

Menu	Options	Description
Graphic Editor	Off	Does not set colors.
	Plane1	This option is not supported.
	Plane2	Sets the color of text for measurement results.
	Plane3	Sets the background color of measurement results and the color of the FAM inactive cursor.
	Plane4	Sets colors for displaying comments, body marks, focus marks, and scales.
	Plane5	Sets the caliper mark for measurement and the FAM active cursor.
	Plane6	Sets the color for displaying the M cursor, D Cursor, and flow area.
	Plane7	Sets the automatic display of the image display area.
	Physio	Sets the display colors for ECG.
Graphic Editor B	0 to 255	Changes the blue of the color display configured in the Graphic Editor. The larger the number, the stronger the blue.
Graphic Editor G	0 to 255	Changes the green of the color display configured in the Graphic Editor. The larger the number, the stronger the green.
Graphic Editor R	0 to 255	Changes the red of the color display configured in the Graphic Editor. The larger the number, the stronger the red.
Graymap	Linear	The brightness characteristics do not change.
	A to D	Select from curve A to D, which offer different brightness characteristics. Sets the brightness characteristics of the image to match those of the display. In this way, information about each diagnostic region is effectively expressed.
Invert ECG Display	Off	Displays the ECG waveform without modification.
	On	Inverts the ECG waveform vertically.
Invert Link	Off	Displays Color Polarity without modification even when the D mode image is inverted.
	On	Inverts Color Polarity when the D mode image is inverted.
Log Off		Logs off the currently logged-on user. This menu is used when the User Authentication function of the instrument is turned on.

Menu	Options	Description
Loop Mode	Short	This mode matches the loop to the B mode with the fewer number of playback images. The B mode with more images will stop loop playback when the playback of B mode with fewer images is completed.
	Long	This mode matches the loop to the B mode with more playback images. The B mode with fewer images will stop loop playback until the playback of B mode with more images is completed.
	Align	The B mode with the greatest number of images becomes the reference for playback time, and the playback time of other B modes are adjusted so they all end their playback at the same time
	Free Run	Each B mode loop plays without any synchronization
Monitor Back Light	0 to 20	Adjusts the backlight intensity of the monitor.
Monitor Brightness	0 to 20	Sets the brightness characteristics.
Monitor Contrast	0 to 20	Sets the contrast of the display.
Parameter Display	Off	Displays the frequency (B), display range, B gain value, and dynamic range value.
	On	Displays the frequency (B), display range, B gain value, and dynamic range value.
Power Limit Override	Off	Restricts acoustic power in fetal applications.
	On	Overrides acoustic power restrictions in fetal applications. The acoustic power display is highlighted. Transmission power can be increased by adjusting [Acoustic Power] rotary encoder.
Print Area	Auto	Sets the size of an image and prints it according to the display format and the measurement results position.
	Full	Always prints full screen.
	Small	Prints the image only in reduced form, regardless of the location of the measurement results.
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.
Rejection	0 to 63	Sets the minimum brightness of the brightness extension range as set in Gamma Curve.
R-Wave Beep	Off	Sets not to beep when the R-wave is detected.
	On	Sets to beep when the R-wave is detected.
Saturation	0 to 63	Sets the maximum brightness of the brightness extension range as set in Gamma Curve.

Menu	Options	Description
Steering Link	Off	Displays the D mode image without inversion even when the polarity changes due to the beam steering angle of a linear probe.
	On	Inverts the D mode image when the polarity changes due to the beam steering angle of a linear probe.
Store Media	HDD	Saves videos or still images to the system hard disk.
	USB	Saves videos or still images to USB-connected media.
	CD-R Buffer	Saves videos or still images to the CD-R buffer of the system.
	DVD	Saves videos or still images to DVD media.
	NET(DICOM)	Transmits videos or still images to the network server in DICOM format.
Thumbnail Page		Switches pages in the thumbnail area.
TI Display	TIS	Displays the thermal index (TIS) for soft tissue on the screen.
	TIB	Displays the thermal index for bones (TIB) on the screen.
	TIC	Displays the thermal index (TIC) for the cranial bones on the screen.
Time Cycle	1 to 16	Sets the time for storing videos in increments of 1 second. This function can be applied when the Acquisition Mode is set to Pre Time or Post Time.
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 image after a video clip is saved while Acquisition Mode is Manual.
Zoom Lock	Off	(Zooms) an image regardless of the display position of the sample volume.
	On	(Zooms) an image with the display position of the sample volume as the center.

B Refresh Table

Triplex Mode	Triplex Mode Type	Simul Mode	B Refresh
Triplex	MSE	On/Off	No
	Refresh	On/Off	Yes
B-Real	MSE	On/Off	No
	Refresh	On	Yes
	Refresh	Off	No
D-Real	MSE	On/Off	No
	Refresh	On	Yes
	Refresh	Off	No

Yes = Can operate

No = Cannot operate

9

Presets

9.1 Overview
9.2 Changing Settings
9.3 Common Preset
9.4 Preset Control
9.5 Managing users
9.6 Preset Set-Up Menu

9.1 Overview

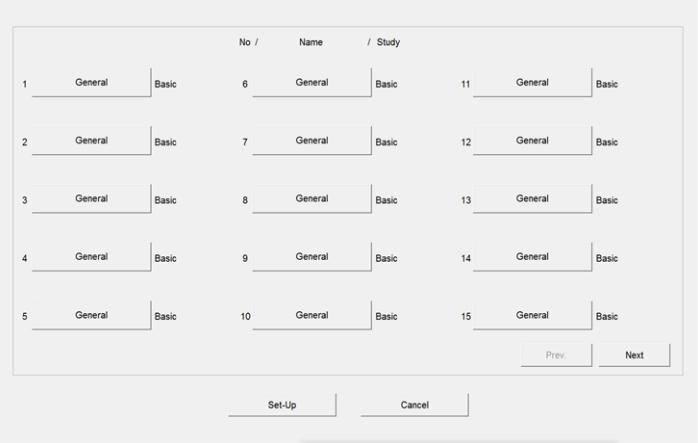
The preset function can store set conditions and load them as necessary. By using presets, you can make adjust and configure the system by using simple procedures, thus reducing the time required to perform an examination.
You can switch the set values according to the purpose of use, the area of interest, and the operator. You can also unify the settings. By storing settings in the system, you can save time and effort that would otherwise be required for setting complex conditions, and prevent mistakes in the setting of conditions.
This system allows users to adjust image quality and set display modes. By using Common Preset, users can set items common to each preset in one batch operation.
This system has standard settings that are suitable for various diagnostic fields including the abdominal region, obstetric region, gynecological region, cardiac region, peripheral vascular region, superficial organ region, and urological region.
With the default settings, this system is set to start by using the setting preset in General the first time the system is switched on.

9.2 Changing Settings

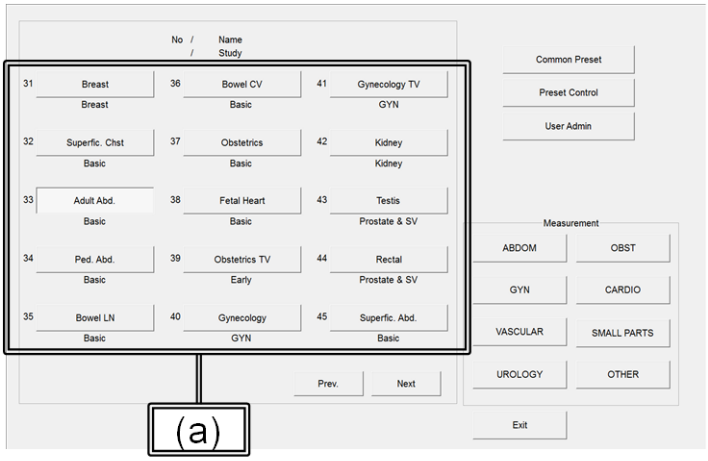
Select a preset as indicated below to change the settings.
NOTE: The HOME button is not available when the Preset screen is displayed.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
   The preset menu is displayed.

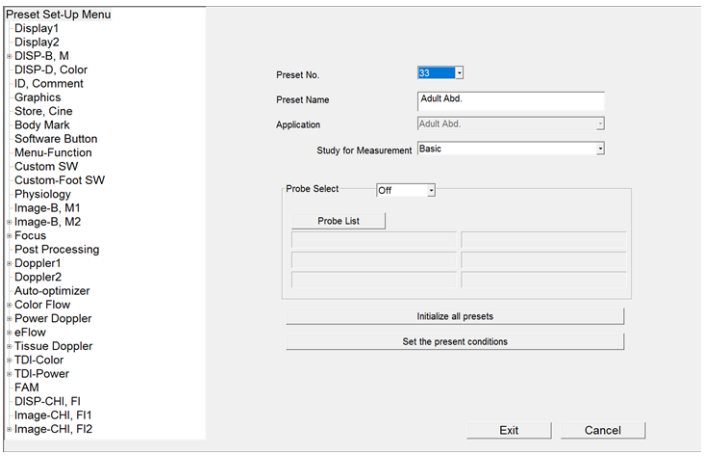


2. Select [Set-Up].
   The preset setting selection list is displayed.



(a) Name/Study List

3. Select a preset from the Name list.
   If the desired preset is not displayed
   Select [Next] or [Prev.] to switch pages in the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.



4. Select the menu of the setting to change from the Tree View on the left of the screen.
5. Change item settings.
   Methods of Changing Settings
   There are three methods for making selections: drop-down list, text box and button.

   - Drop-down list
     Select ▼ next to the drop-down list, then select the item you wish to change from the list.
   - Text box
     Select an input field and then use the software keyboard to enter text.
     It may be possible to enter text directly in a drop-down list as well.
   - Button
     Select the button for the desired change.
     There are two types of buttons: On/Off toggle buttons and buttons that immediately initialize the system when pressed.

   To return to the position of the factory default

Select [Initialize all presets].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.

9.3 Common Preset

Sets items that all presets share.
It consists of the following presets:

Common1	Sets items that all presets share (1)
Common2	Sets items that all presets share (2)
Common3	Monitor Setting: Configures combinations of brightness settings for the display.
Print (Freeze)	Sets the output destination of still images while freezing.
Print (Realtime)	Sets the output destination of still images during the real-time display mode
Print Select	Sets parameters such as the output size and format in the Archive Group, connected printer(s), etc.
DICOM-Store, Send	Settings for storage and transfer of DICOM images and network setup
DICOM-Server	Network server settings
DICOM-Address	Sets the name and address of the department that uses this system.
DICOM-Printer	DICOM printer (networked printer) network settings.
DICOM-SR	DICOM SR server network settings.
DICOM-QR	DICOM QR server network settings.
IHE/Auto Delete	MPPS server and Storage Commitment server network settings.

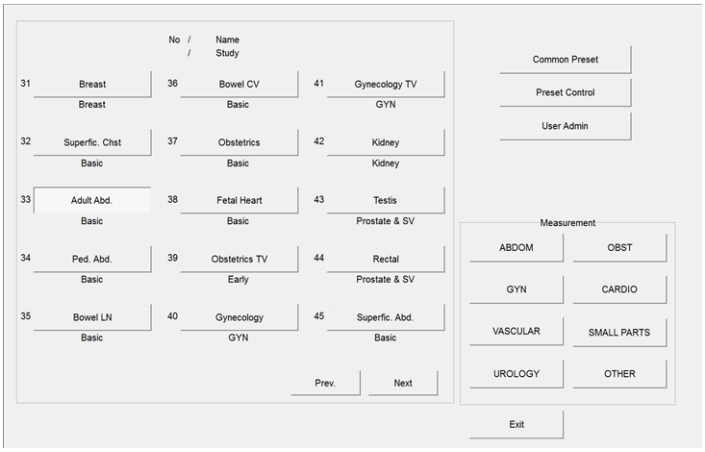
NOTE: The Common Preset screen is displayed even if the settings described on the next page and [Settings] are selected in the HOME screen.
NOTE: Consult the network administrator of the hospital network about details of the network settings.

9.3.1 Common1

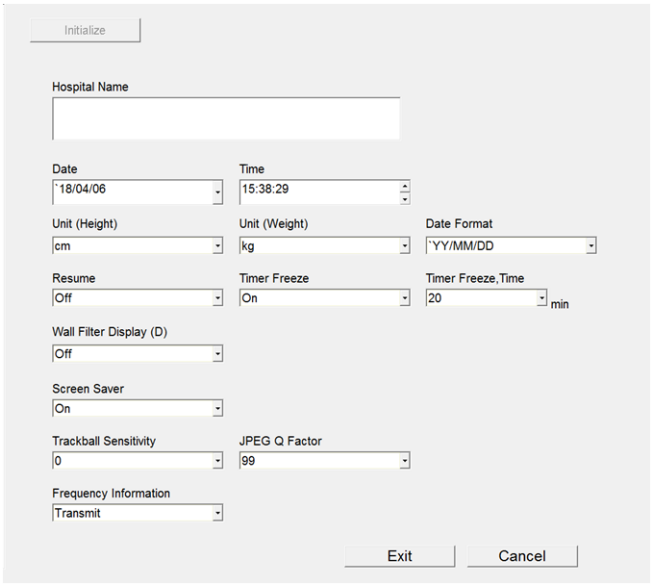
Sets items that all presets share.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.



3. Select [Common Preset].
   The Common1 screen is displayed.



4. Change item settings.
   To return to the position of the factory default
   Select Initialize.

5. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.

Common1 Settings

Item	Options	Description
Hospital Name	20 characters × 2 lines	Sets the hospital name.
Date		Sets the date.
Time		Sets the time.
Unit (Height)	cm m feet/inch	Sets the unit of height on the ID input screen.

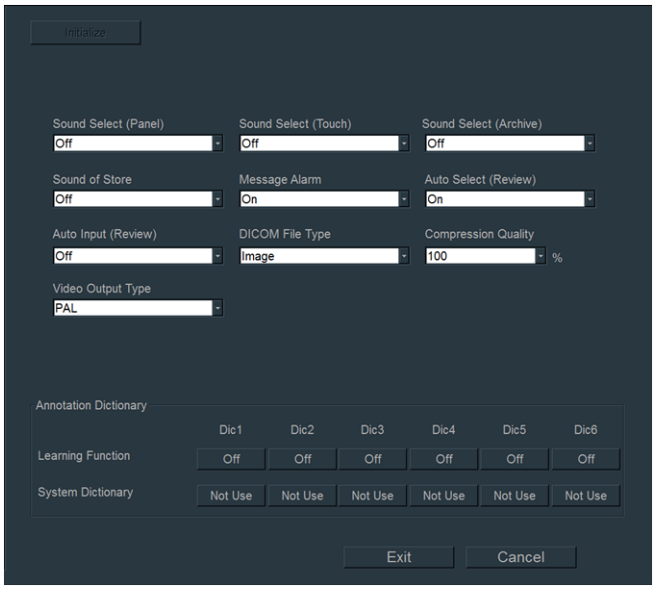
Item	Options	Description
Unit (Weight)	Kg pound	Sets the unit of weight on the ID input screen.
Date Format	'YY/MM/DD MMM.DD,YY MM.DD,'YY DD-MMM-YY DD-MM-'YY	Sets the format of the Date of birth on the ID input screen.
Resume	Off	Sets to start up with the specified preset defaults when the system is started.
	On	Sets to start up with the conditions when the power was last turned off.
Timer Freeze	Off	Turns [Off] the setting to automatically freeze images. In addition, Off does not activate the screen saver.
	On	Turns on the setting to automatically freeze images. Freezes unless it is operated before the set time.
Timer Freeze, Time	1 to 20	When [Timer Freeze] is set to "On", this item sets the time until Timer Freeze or the screen saver is activated.
Wall Filter Display (D)	Off	Sets to hide the Wall Filter frequency displayed in stored images.
	On	Sets to display the Wall Filter frequency displayed in stored images.
Screen Saver	Off On	Settings for the screen saver display.
Trackball Sensitivity	-5 to 5	Sets the sensitivity of the trackball.
JPEG Q Factor	50 to 99	Sets the image compression rate to use when the transfer syntax is JPEG. The smaller the value, the higher the compression ratio.
Frequency Information	Transmit	Sets the frequency information in Tissue Harmonic Mode to Transmit.
	Receive	Sets the frequency information in Tissue Harmonic Mode to Receive.

9.3.2 Common 2

Sets items that all presets share.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [Common2] from the Tree View.
   The Common2 screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Common2 Settings

Item	Settings	Functions
Sound Select (Panel)	Off On	Sets the sounds when operating keys on the operation panel.
Sound Select (Touch)	Off A B C	Sets the sound when the touch panel is touched.
Sound Select (Archive)	Off A B C	Sets the sound that is heard when the [Archive Group 1] switch is pressed.
Sound of Store	Off On	Sets the sound to go off when a still image or video is saved.
Message Alarm	Off On	Sets the message display sound (beep).
Auto Select (Review)	Off	When the Image Viewer is displayed, turn "Off" the select all images function.
	On	When the Image Viewer is displayed, this turns On the select all images function.
Auto Input (Review)	Off	When the Review search screen is displayed, this sets the system to hide ID information.
	On	When the Review search screen is displayed, this sets the system to display ID information.

Item	Settings	Functions
DICOM File Type	Line	If a Line video is to be saved as a DICOM file in Review, this sets it to be saved in Line format.
	Image	If a Line video is to be saved as a DICOM file in Review, this sets it to be saved in Multi Image format.
Compression Quality	30 to 100	Sets the compression ratio (in steps of 10%) for images when converting to a Multi Image from a Line video or when converting to an AVI file. The smaller the value, the higher the compression ratio.
Video Output Type	NTSC PAL HD+	Sets the input and output signals of analog videos.

Annotation Dictionary

Makes settings for the system dictionaries, Dictionary 1 (Dic1) to Dictionary 6 (Dic6).

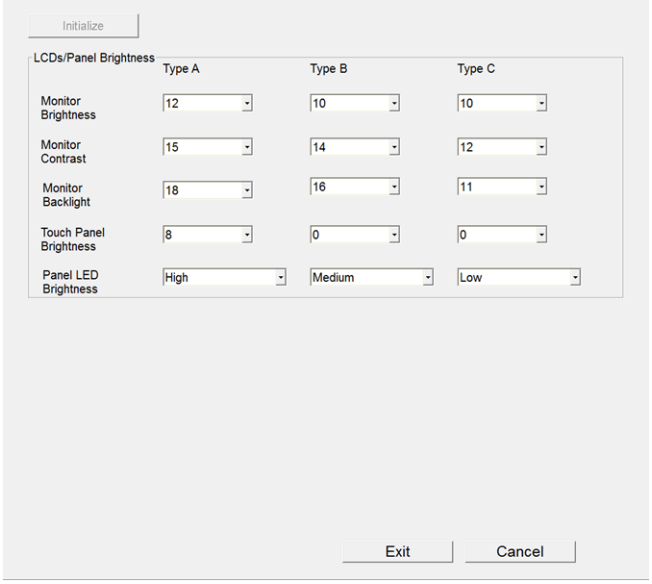
Item	Settings	Functions
Learning Function	Off	Displays in the order of user registration and system dictionary.
	On	Displays in the order from the most recently selected word.
System Dictionary	Not Use	Does not use as system dictionary.
	Use	Uses as system dictionary.

9.3.3 Common3

Monitor Setting: Sets three types (Type A, Type B, Type C) of the brightness of the display. When settings are registered, you can switch between them using the Monitor Setting of the Preset ([Preset Set-Up Menu > Display2]).

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [Common3] from the Tree View.
   The Common3 screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Common3 Settings

Item	Settings	Functions
Monitor Brightness	0 to 20	Adjusts brightness of the display.
Monitor Contrast	0 to 20	Adjusts contrasts of the display.
Monitor Backlight	0 to 20	Adjusts backlight intensity of the display.
Touch Panel Brightness	0 to 15	Adjusts brightness of the touch panel display.
Panel LED Brightness	Low Medium High	Adjusts brightness of the LED on panel.

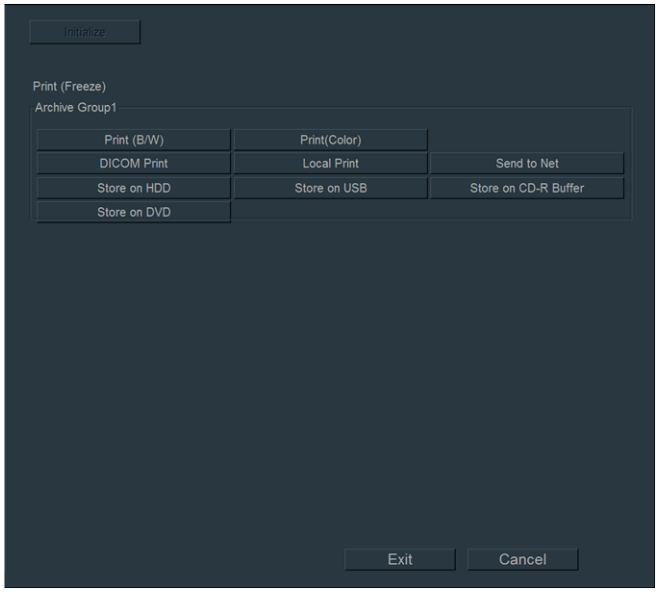
9.3.4 Print (Freeze)

This preset sets the still image output method while frozen.
You can set an output method for the Custom SW of Archive Group1.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [Print (Freeze)] from the Tree View.

The Print (Freeze) screen is displayed.



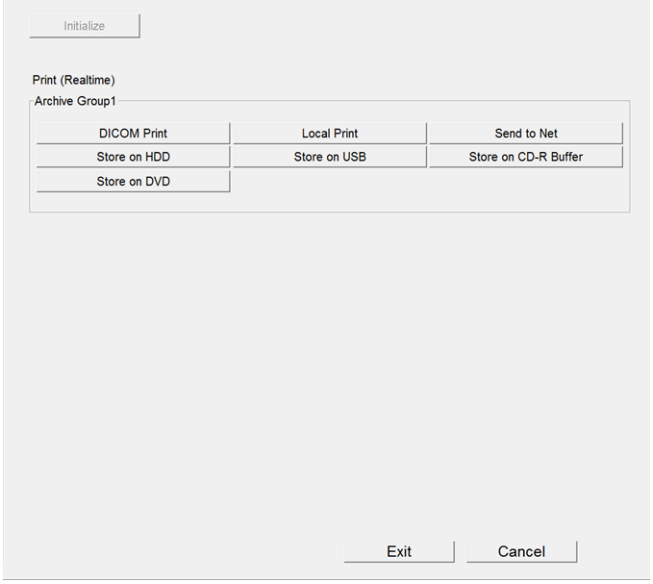
5. Select the output method.
   If left unset
   Unless a selection is made, no output method is set.
   To return to the position of the factory default.
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

9.3.5 Print (Realtime)

This preset sets the still image output method during the real-time display mode.
You can set up 1 output method for an Archive Group1 Custom SW. If you press Custom SW (assigned to Archive Group1), it uses the output method set for the assigned Archive Group1.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [Print (Realtime)] from the Tree View.
   The Print (Realtime) screen is displayed.



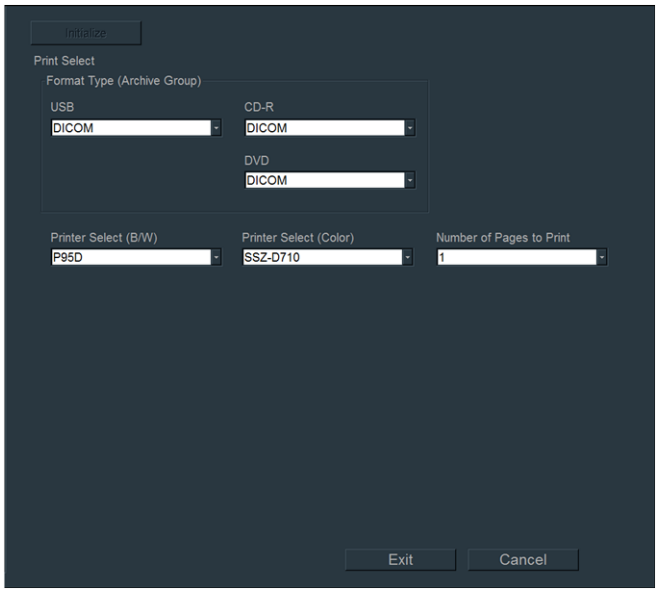
5. Select the output method.
   If left unset
   Unless a selection is made, no output method is set.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

9.3.6 Print Select

This preset sets the output size (digital printer only) and format of the Archive Group1.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [Print Select] from the Tree View.
   The Print Select screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Print Select Settings

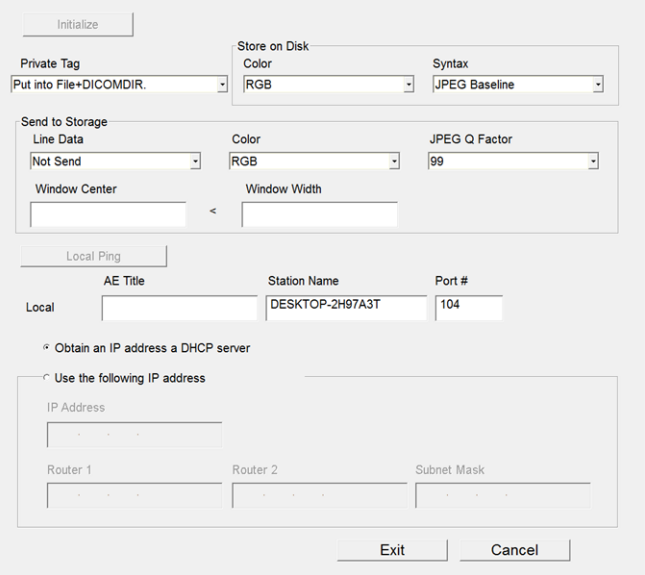
Item	Settings	Functions
USB	DICOM JPEG BMP TIFF	Sets the storage format of Store on USB in the Archive Group1.
CD-R	DICOM JPEG BMP TIFF	Sets the storage format of Store on CD-R Buffer in the Archive Group1.
DVD	DICOM JPEG BMP TIFF	Sets the storage format of Store on DVD in the Archive Group1.
Printer 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.

9.3.7 DICOM-Store, Send

Set the save conditions for DICOM images. The system network settings can also be entered.

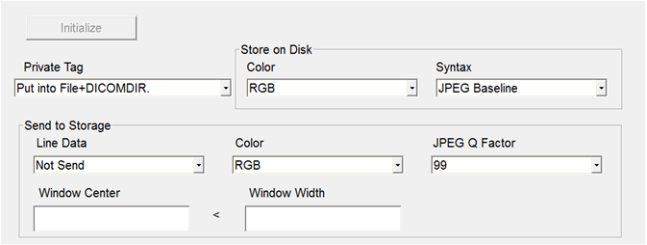
Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [DICOM-Store, Send] from the Tree View.
   The DICOM-Store, Send screen is displayed.



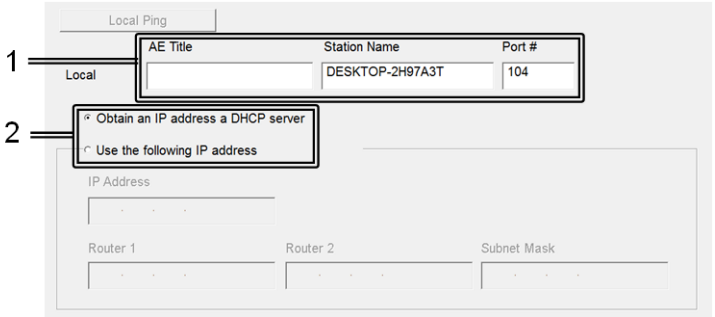
5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.
   NOTE: If the IT network has been changed, it may be open to new and unacceptable risks, so additional risk management is required. See the separate manual "Instructions for Use".

DICOM Image Store Settings



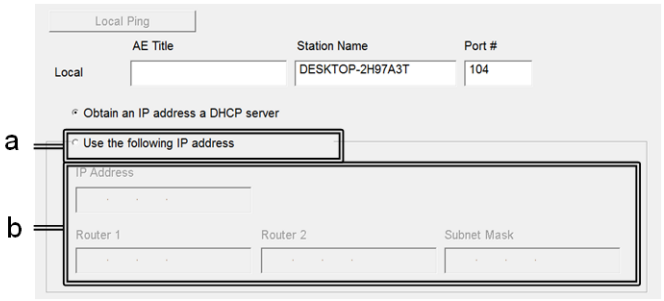
Item	Settings	Functions
Private Tag	None	Sets to output DICOM data without providing a private tag.
	Put into File.	Specifies the setting to add a private tag when saving DICOM data to external media.
	Put into Network.	Specifies the setting to add a private tag when transferring DICOM data to a server.
	Put into Both.	Specifies the setting to add a private tag when saving DICOM data to external media or transferring it to a server.
	Put into File + DICOMDIR.	Specifies the setting to also add a private tag to DICOMDIR when saving DICOM data to external media.
	Put into All.	Specifies the setting to also add a private tag to DICOMDIR when saving DICOM data to external media or transferring it to a server.
Store on Disk Color	Palette Color RGB	Sets the save format when saving color images to disk.
Store on Disk Syntax	Implicit Little Explicit Little RLE Lossless JPEG Baseline	Sets the transfer syntax when saving images to disk.
Send to Storage Line Data	Not Send	When sending images via Review to a server, this sets it to send images except for Line videos.
	Send	When sending images via Review to a server, this sets it include Line videos when sending the data. This setting is for sending images to a server that can receive Line videos.
Send to Storage Color	Palette Color RGB Monochrome2	Sets the save format for sending color images via the network.
Send to Storage JPEG Q Factor	50 to 99	Sets the compression ratio of images when Syntax is set to JPEG. The smaller the value, the higher the compression ratio.
Send to Storage Window Center	0 to 255 (Key input)	When sending DICOM images when the storage format is "Monochrome2", this sets "Window Center" (0028, 1050) to the DICOM Tag.
Send to Storage Window Width	1 to256 (Key input)	When sending DICOM images when the storage format is "Monochrome2", this sets "Window Width" (0028, 1051) to the DICOM Tag.

Sets the IP address of the system.



Procedure

1. Enter the system's AE Title, Station Name, and Port # via DICOM-Store, Send in Presets.
2. Select the type of IP address for the system.
   To automatically acquire the IP address via the DHCP server.
   Select [Obtain an IP address a DHCP server.].
   To use a fixed IP address.



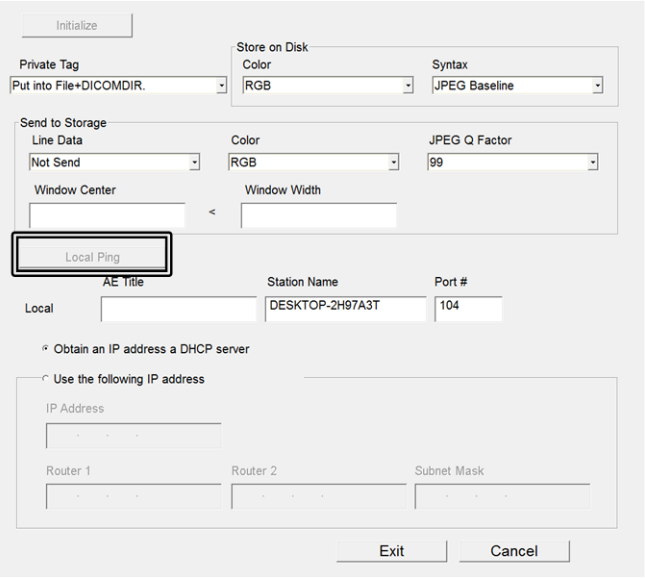
   a. Select [Use the following IP address].
   b. Enter the system's IP Address, Router 1, Router 2, and Subnet Mask.

Settings

Item	Settings	Functions
Local Ping		Checks whether TCP/IP of this system is operating properly.
AE Title	Key Input	Sets the AE name of the system.
Station Name	Key Input	Sets the station name of the system.
Port #	Key Input	Sets the port number of the system.The DICOM standard setting is 104.
IP Address	Key Input	Set the IP address of the system.
Router 1	Key Input	Sets the router address of the system. When a router is not used, it is left blank.
Router 2	Key Input	
Subnet Mask	Key Input	Sets the system subnet mask.

Checking the system's TCP/IP

Check whether TCP/IP of this system is operating properly.



- Select [Local Ping] via DICOM-Store, Send in Presets.
  A start message is displayed and the system starts checking TCP/IP operation.
  The following message is displayed when the test is complete.

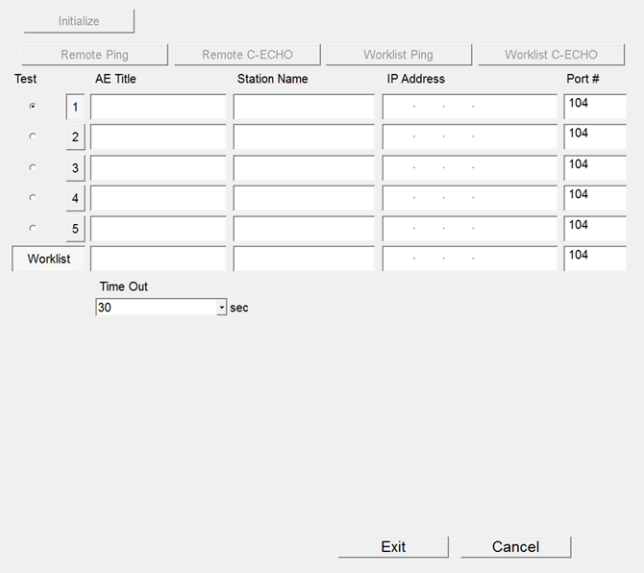
Messages	Examination Results
"Ping check to ********.******* successful"	Indicates that TCP/IP is operating normally.
"Ping check to ********.******* failed"	Indicates that TCP/IP is not operating. Consult the network administrator of the hospital network.

9.3.8 DICOM-Server

Makes settings for DICOM server and Worklist.

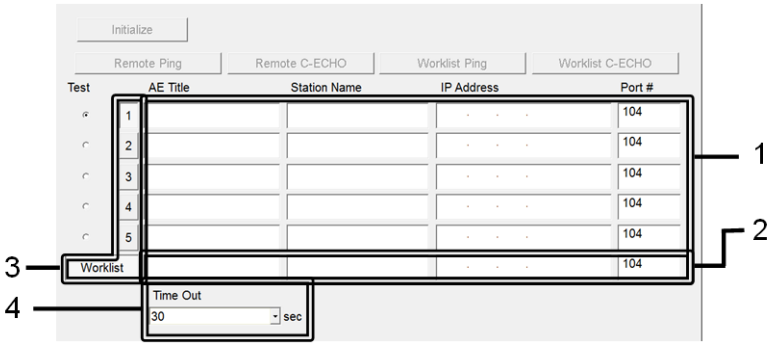
Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [DICOM-Server] from the Tree View.
   The DICOM-Server screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Entering Network Settings



Procedure

1. Enter the settings for network servers via DICOM-Server in Presets.
   a. Enter the AE Title.
   b. Enter the Station Name.
   c. Enter the IP Address.
   d. Enter the Port #.
   e. Enter settings for the required number of network servers.
2. Set up the Worklist if required.
   If the Worklist and image storage services have different AE Title
   Key in the network settings for the Worklist.
   If the Worklist and image storage services share the same AE Title

Leave the Worklist field blank.

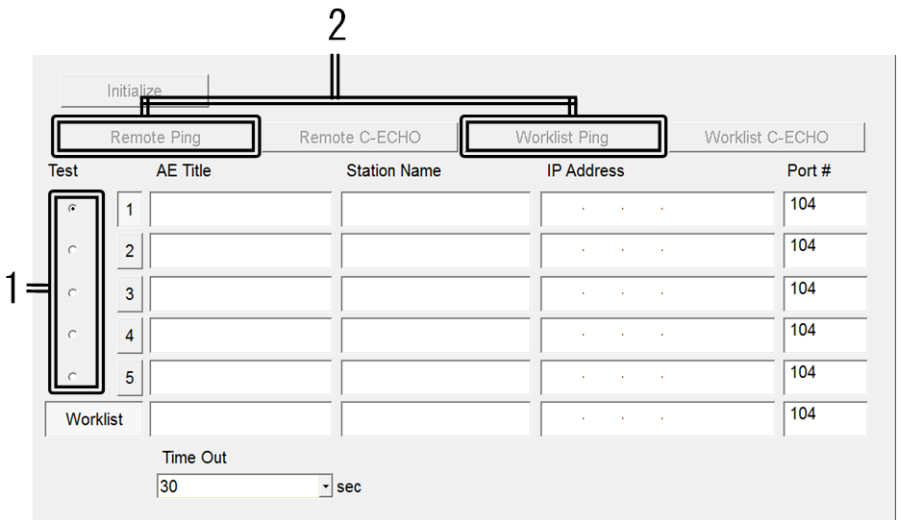
3. Sets the destination network server.
   If the Worklist and image storage services have different AE Title
   Select network server [1] to [5] and the [Worklist].
   If the Worklist and image storage services share the same AE Title
   Select from network server [1] to [5].
4. Set the time until communications timeout in the Time Out field.

Settings

Item	Settings	Functions
AE Title	Key Input	Sets the program name of the network server.
Station Name	Key Input	Sets the computer name of the network server.
IP Address	Key Input	Sets the network address of the network server.
Port #	Key Input	Sets the TCP/IP port number used by the network server.The DICOM standard setting is 104.
Time Out	1 to 1000	Sets the communication time-out in increments of seconds.

Checking TCP/IP for Network Servers

Check whether TCP/IP of the network server is operating properly.
The AE Title, Station Name, and IP Address can be checked for all entered network servers.



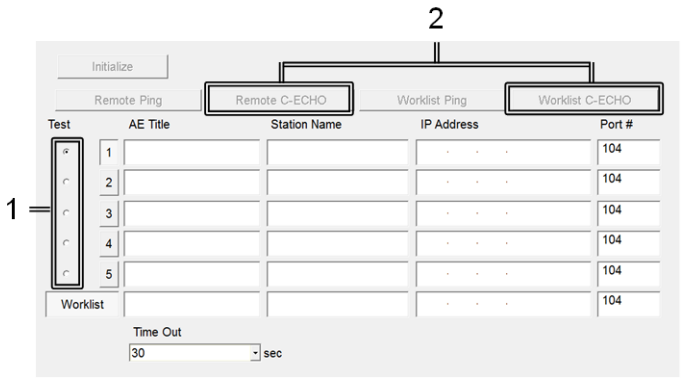
Procedure

1. Select the network server(s) to check from Test under the DICOM-Server preset (if other than Worklist).
2. If it is a Worklist server, then select [Worklist Ping]. For any other network server, select [Remote Ping].
   A start message is displayed and the system starts checking TCP/IP operation.
   The following message is displayed when the test is complete.

Messages	Examination Results
"Ping check to ******** .******* successful"	Indicates that TCP/IP is operating.
"Ping check to ******** .******* failed"	Indicates that TCP/IP is not operating. Consult the network administrator of the hospital network.

Checking C-ECHO for Network Servers

This checks whether the network server has a DICOM compatible function, and whether it is functioning.
The AE Title, Station Name, and IP Address can be checked for all entered network servers.



Procedure

1. To check any server other than a Worklist server, select the network server(s) to check from Test under the DICOM-Server preset.
2. To check a Worklist server, then select [Worklist C-ECHO]. For any other network server,
   select [Remote C-ECHO].
   A start message is displayed and the system starts checking TCP/IP operation.
   The following message is displayed when the test is complete.

Messages	Test Results
"Echo check to ******** . ******* successful"	Indicates that the DICOM compatible function is operating.
"Echo check to ******** . ******* failed"	Indicates that the DICOM compatible function is not operating. Consult the network administrator of the hospital network.

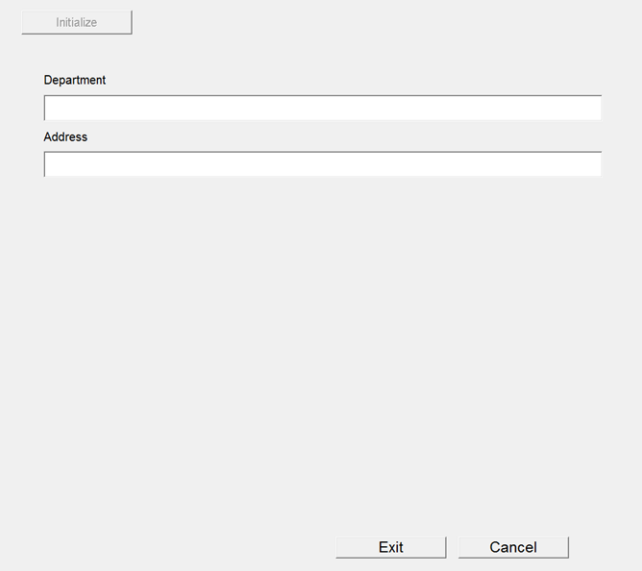
9.3.9 DICOM-Address

Sets the name and address of the department that uses this system.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].

4. Select [DICOM-Address] from the Tree View.
   The DICOM-Address screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

DICOM-Address Settings

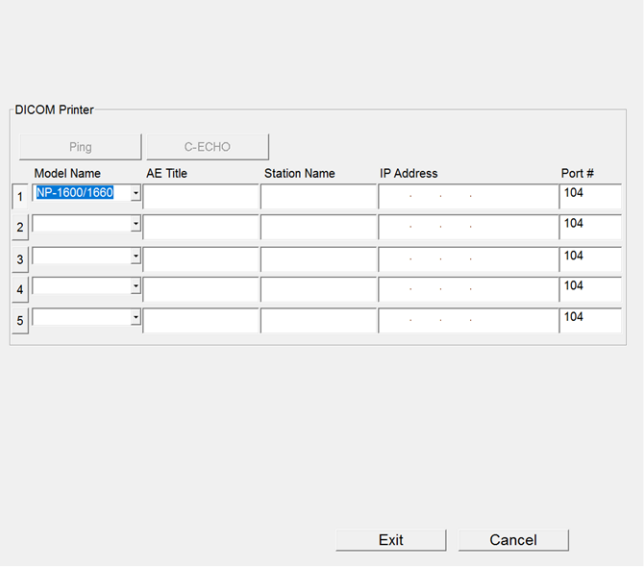
Item	Settings	Functions
Department	Key Input	Sets the department name.
Address	Key Input	Sets the address of the hospital.

9.3.10 DICOM-Printer

This preset makes settings for the DICOM printer (network printer).

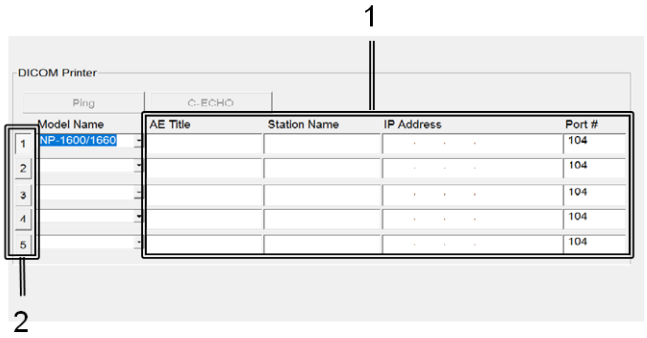
Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [DICOM-Printer] from the Tree View.
   The DICOM-Printer screen is displayed.



5. Change item settings.
6. Select [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Entering Network Settings



Procedure

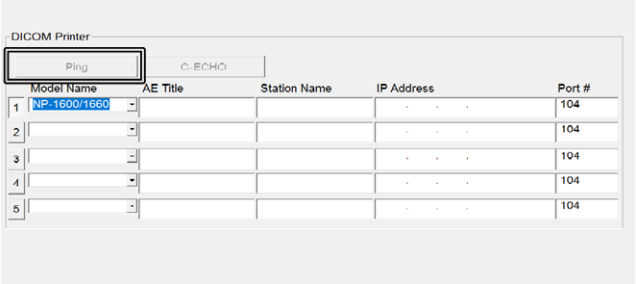
1. Enter the settings for network servers via DICOM-Printer in Presets.
   a. Enter the AE Title.
   b. Enter the Station Name.
   c. Enter the IP Address.
   d. Enter the Port #.
   e. Enter settings for the required number of network servers.
2. Configures destination network servers from [1] to [5].

Settings

Item	Settings	Functions
Model Name	NP-1600/1660 FUJIFILM KONICA GENERAL	Sets the printer name.
AE Title	Key Input	Sets the program name of the network server.
Station Name	Key Input	Sets the computer name of the network server.
IP Address	Key Input	Sets the network address of the network server.
Port #	Key Input	Sets the TCP/IP port number used by the network server.The DICOM standard setting is 104.

Checking TCP/IP for Network Servers

Check whether TCP/IP of the network server is operating properly.
The AE Title, Station Name, and IP Address can be checked for all entered network servers.



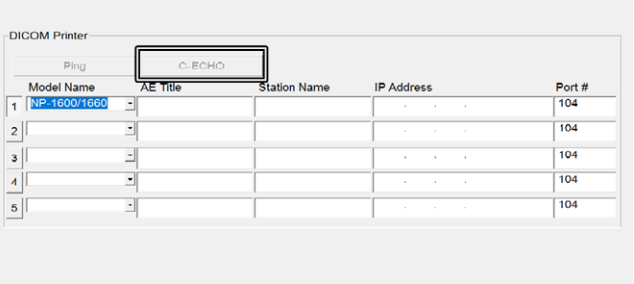
Procedure

1. Select the network server(s) to check from [1] to [5] under the DICOM-Printer preset.
2. Select [Ping].
   A start message is displayed and the system starts checking TCP/IP operation.
   The following message is displayed when the test is complete.

Messages	Examination Results
"Ping check to ******** . ******* successful"	Indicates that TCP/IP is operating.
"Ping check to ******** . ******* failed"	Indicates that TCP/IP is not operating. Consult the network administrator of the hospital network.

Checking C-ECHO for Network Servers

This checks whether the network server has a DICOM compatible function, and whether it is functioning.
The AE Title, Station Name, and IP Address can be checked for all entered network servers.



Procedure

1. Select the network server(s) to check from [1] to [5] under the DICOM-Printer preset.
2. Select [C-ECHO].
   A start message is displayed and the system checks TCP/IP operation for the DICOM printer.
   The following message is displayed when the test is complete.

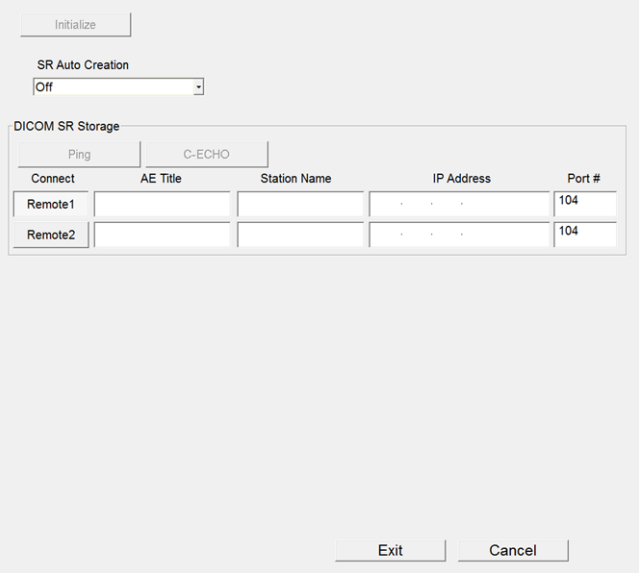
Messages	Examination Results
"Echo check to ******** . ******* successful"	Indicates that the DICOM compatible function is operating.
"Echo check to ******** . ******* failed"	Indicates that the DICOM compatible function is not operating. Consult the network administrator of the hospital network.

9.3.11 DICOM-SR

This preset sets items related to the DICOM SR server.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [DICOM-SR] from the Tree View.
   The DICOM-SR screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

DICOM-SR Settings

Item	Settings	Functions
SR Auto Creation	Off	This configures the system to not generate a DICOM SR file after completing an examination even if [New Patient] is selected.
	On	This configures the system to generate a DICOM SR file and send it to the server after an examination is complete and [New Patient] is selected.
Ping		Checks whether TCP/IP of the DICOM SR server whose number is selected is properly connected to the network. To perform this check, all items for the DICOM SR server of that number (AE Title, Station Name, IP Address, and Port#) need to be set. After starting the check, follow the instructions in the dialog box.
C-ECHO		Checks whether the DICOM SR server whose number is selected has a DICOM SR compatible function, and if the server is operating. To perform this check, all items for the DICOM SR server of that number (AE Title, Station Name, IP Address, and Port#) need to be set. After starting the check, follow the instructions in the dialog box.
Connect	Remote 1 Remote 2	Sets the DICOM SR server.
AE Title	Key Input	Sets the program name of the DICOM SR server.
Station Name	Key Input	Sets the DICOM SR server computer name.

Item	Settings	Functions
IP Address	Key Input	Sets the network address assigned to the DICOM SR server.
Port #	Key Input	Sets the TCP/IP port number used by the DICOM SR server.

9.3.12 DICOM-QR

Sets items related to the DICOM QR server.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [DICOM-QR] from the Tree View.
   The DICOM-QR screen is displayed.

5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

DICOM-QR Settings

Item	Settings	Functions
Local Port#		Enter the TCP/IP port number for DICOM QR.
Ping		Checks whether TCP/IP of the DICOM QR server whose number is selected is properly connected to the network. To perform this check, all items for that number (AE Title, Station Name, IP Address, and Port#) need to be set. After starting the check, follow the instructions in the dialog box.

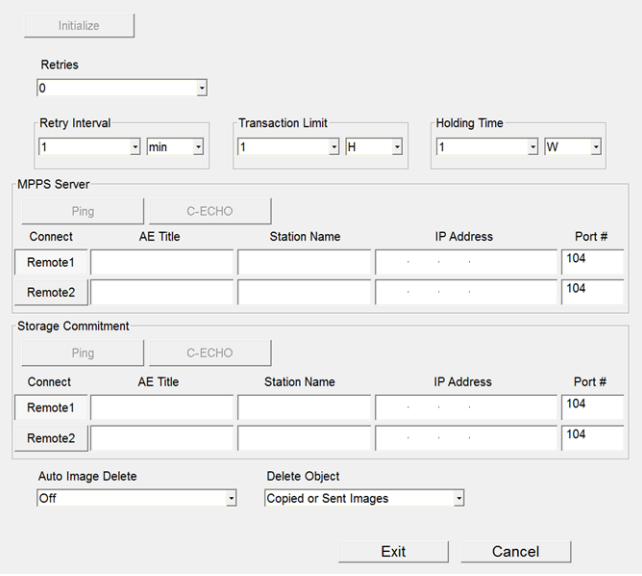
Item	Settings	Functions
C-ECHO		This function checks whether the server of the selected No. has a DICOM compatible function and if it is working. To perform this check, all items for that number (AE Title, Station Name, IP Address, and Port#) need to be set. After starting the check, follow the instructions in the dialog box.
Connect	Remote 1 Remote 2 Remote 3 Remote 4 Remote 5	Sets the server
AE Title	Key Input	Sets the program name of the server.
Station Name	Key Input	Sets the server computer name.
IP Address	Key Input	Sets the network address assigned to the server.
Port #	Key Input	Sets the TCP/IP port number used by the server.

9.3.13 IHE/Auto Delete

This preset makes network settings for the MPPS server and the Storage Commitment server.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Common Preset].
4. Select [IHE/Auto Delete] from the Tree View.
   The IHE/Auto Delete screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IHE/Auto Delete Settings

These settings consist of items for the MPPS server and the Storage Commitment server and settings for Auto Delete.

Item	Settings	Functions
Retries	0	Specifies the setting to display an error without resending a request to the Storage Commitment server when the server does not respond.
	1 to 99	Sets the number of times to resend requests to the Storage Commitment server when there is no response from the server. Specifies the setting to display an error if the set number of tries is exceeded.
	Unlimited	Specifies the setting to resend requests to the Storage Commitment server until there is a response from the server.
Retry Interval	1 to 60	Sets the interval for resending a request to the server.
	Power On	Specifies the setting to resend a request to the server only when the power is on.
	min	Sets the unit of Retry Interval to minutes ((minuite).
	H	Sets the unit of Retry Interval to hours (hour).
Transaction Limit	1 to 60	Sets the wait time for receiving a reply from the Storage Commitment server (time before resending a request) after sending an image to the server.
	Unlimited	Sets the system to not resend a request to the Storage Commitment server after sending an image to the server until there is a response from it.
	H	Sets the unit of Transaction Limit to hours.
	D	Sets the unit of Transaction Limit to days.
	W	Sets the unit of Transaction Limit to weeks.
Holding Time	0 to 60	Sets the period of time for which to store the following images in the system: Images saved on the local HDD, images saved from the local HDD to external media, or images sent from the local HDD to a server. The function manages the storage time based on the the time period (the number of days and hours) images are stored on the local HDD.
	D	Sets the unit of the storage time in the device to days.
	W	Sets the unit of the storage time in the device to weeks.
	M	Sets the unit of the storage time in the device to months.

Table 1: MPPS Server

Item	Settings	Functions
Ping		Checks whether TCP/IP of the MPPS server whose number is selected is properly connected to the network. To perform this check, AE Title, Station Name, IP Address need to be set for the selected MPPS server.
C-ECHO		Checks whether the MPPS server whose number is selected has a MPPS compatible function and if it is operating. To perform this check, AE Title, Station Name, IP Address need to be set for the selected MPPS server.
Connect	Remote 1 Remote 2	Sets the destination MPPS server.
AE Title	Key Input	Sets the program name of the MPPS server.
Station Name	Key Input	Sets the MPPS server computer name.
IP Address	Key Input	Sets the network address of the MPPS server.
Port #	Key Input	Sets the TCP/IP port number used by the MPPS server.

Table 2: Storage Commitment

Item	Settings	Functions
Ping		Checks operation of network connections for TCP/IP of the Storage Commitment server of the selected number. To perform this check, AE Title, Station Name, IP Address need to be set for the selected Storage Commitment server.
C-ECHO		Checks whether the Storage Commitment server whose number is selected has a Storage Commitment compatible function and if it is operating. To perform this check, AE Title, Station Name, IP Address need to be set for the selected Storage Commitment server.
Connect	Remote 1 Remote 2	Sets the Storage Commitment server.
AE Title	Key Input	Sets the program name of the Storage Commitment server.
Station Name	Key Input	Sets the computer name of the Storage Commitment server.
IP Address	Key Input	Sets the network address of the Storage Commitment server.
Port #	Key Input	Sets the TCP/IP port number used by the Storage Commitment server.

Table 3: Auto Image Delete Settings

Auto Image Delete is a function that automatically deletes images saved on the local HDD or to external media, or images on the local HDD that have been sent to a server, after the set period of time has elapsed.

Item	Settings	Functions
Auto Image Delete	Storage Commitment	Sets the system to automatically delete the images saved on the local HDD (those with a blue icon) for which the amount of time set for Holding Time has passed after receiving Commitment. These images are deleted the first time the system is switched on after the set period of the Holding Time has elapsed.
	Time	Sets the system to automatically delete those images, among the images saved on the local HDD for which the amount of time set for Holding Time has passed, that were specified by using Delete Object. These images are deleted the first time the system is switched on after the set period of the Holding Time has elapsed.
	Off	Turns "Off" the automatic deletion of saved images.
Delete Object	All Images	Under this setting, all images saved to the local HDD are subject to automatic deletion.
	Copied or Sent Images	Under this setting, images saved to the local HDD that have either been saved to external media or sent to a server (those with light blue, orange or blue icons) are subject to automatic deletion.

9.4 Preset Control

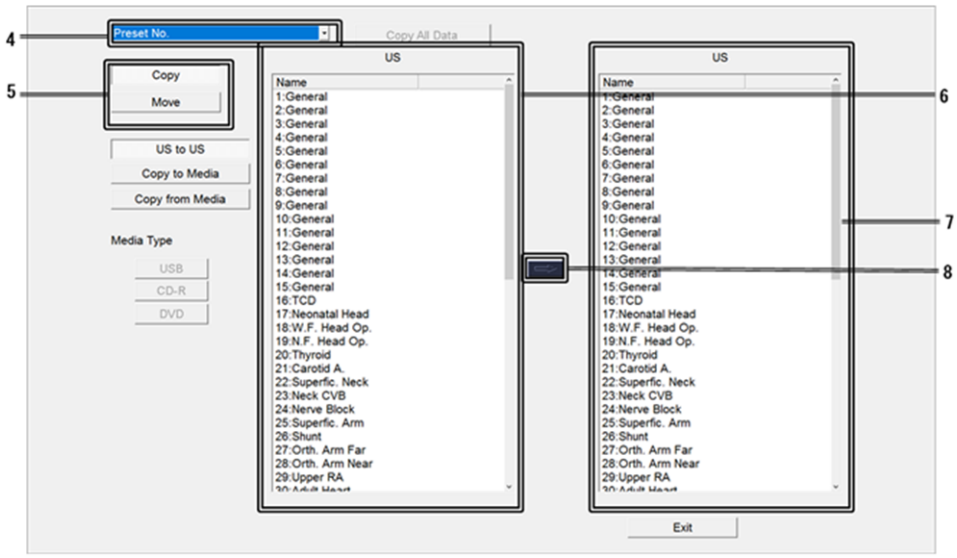
This function copies the data set for each Preset No. (settings related to images and measurement). The function also copies these settings to external media.In addition to the Preset No. data, data for Annotation Dictionary, Bodymark Library, Common Preset, Color Map, Color Map (B/M/D), and Measurement can also be copied.
To copy data between the system and USB flash memory, connect the USB flash memory to the system.

9.4.1 Changing the Sequence of Presets

You can only change the sequence of Preset No.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Preset Control].
   The following screen is displayed.

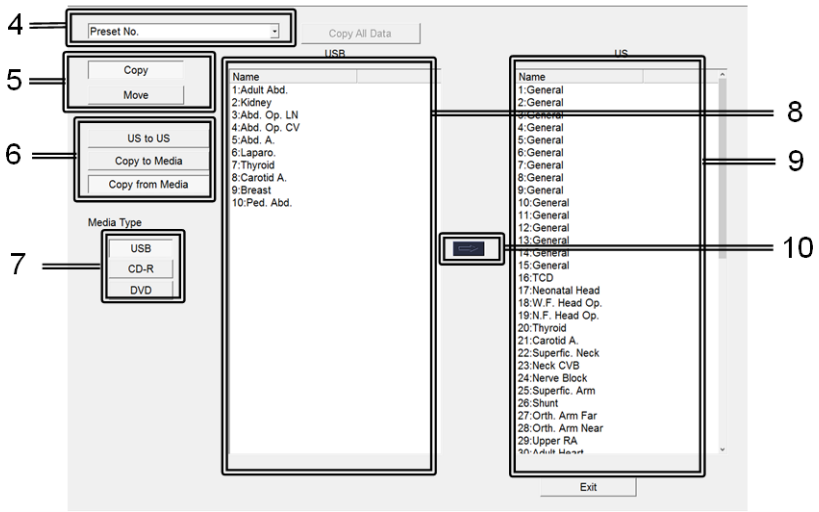


4. Select [Preset No.] from the drop-down list.
5. Select [Move].
6. Select the data to move from the list on the left side of the arrow.
7. Select the number of the movement destination from the list on the right side of the arrow.
8. Select the arrow
   The order of the Preset No. list is changed.

9.4.2 Copying a Selected Preset

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Preset Control].
   The following screen is displayed.



4. Select the target data from the drop-down list.

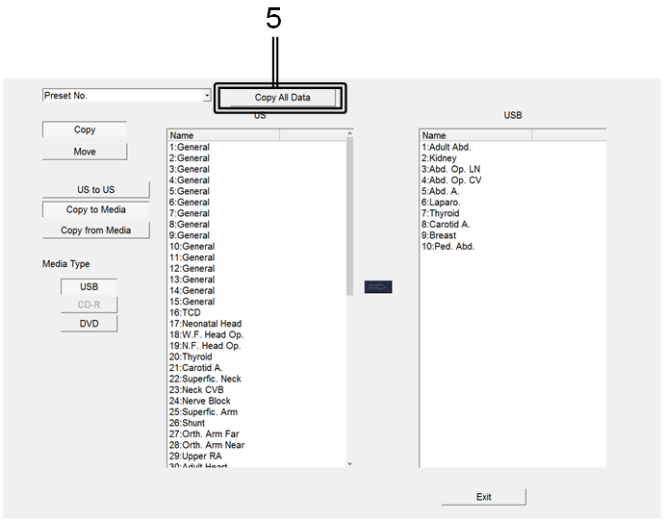
5. Select [Copy].
6. Select the copying method.
   - [US to US]: Copies data inside the system. (Preset No. only)
     The preset data is displayed in the copy source list (list on the left of the arrow).
   - [Copy to Media]: Copies data from the system to the media specified under Media Type. Note that Body Marks cannot be copied. Also note that presets and Annotations can be copied only to USB flash memory or to a DVD.
   - [Copy from Media]: Copies data from the media specified under Media Type to the system.
7. (When [Copy to Media] or [Copy from Media] is selected) select Media Type.
   - [USB]: Sets the media to USB flash memory.
   - [CD-R]: Sets the media to CD-R Buffer.
   - [DVD]: Sets the media to DVD.
8. From the copy source list (the list on the left side of the arrow), select the name of the preset from which data is to be copied .
9. From the copy destination list (the list on the right side of the arrow), select the name of the preset to which data is to be copied .
10. Select the arrow
    The message "In progress. Please wait." is displayed and copying starts.
    NOTE: Do not remove the USB flash memory while the message is displayed.
    When copying is complete, the copied preset is displayed in the copy destination list (the list on the right side of the arrow).

9.4.3 Copying All Preset Data

This function batch copies preset data to USB flash memory. However, Bodymark Library is not included.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [Preset Control].
   The following screen is displayed.



4. Connect the USB flash memory to the system.
5. Select [Copy All Data].
   The message "In progress. Please wait." is displayed and copying starts.
   NOTE: Do not remove the USB flash memory while the message is displayed.
   When copying is complete, the copied Presets is displayed in the copy list (list on the right of the arrow).

9.5 Managing users

This function limits users of the system to users who have been registered, and manages and protects patient data, system settings, and audit logs.
By limiting system operation permissions to registered users, you can protect patient data and track access to patient data. There are three levels of user access permissions, which helps to maintain system statuses such as presets.
NOTE: At the factory default setting, the user authentication function is disabled. No users are registered. Contact us before using user authentication.

Access permissions	Level 1	Level 2	Level 3
Managing users • Settings for user authentication functions • User management (registering new users, deleting users, and changing access permissions)	Yes	No	No
Patient data management	Yes	Yes	No
Preset configuration	Yes	Yes	No
Changing login passwords	Yes	Yes	Yes
Other controls	Yes	Yes	Yes

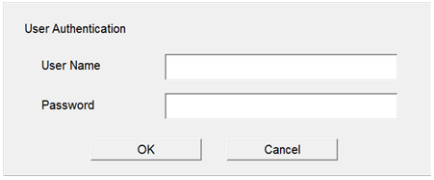
NOTE: The HOME button is not available when the User authentication screen is displayed.

9.5.1 User Admin

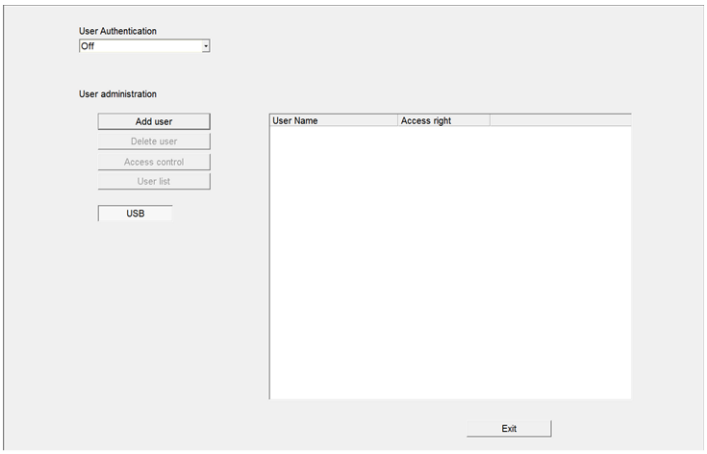
This function registers new users and deletes registered users. It also sets user access levels.
Only Level 1 users have access to user management.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
3. Select the [User Admin].
   A login dialog box is displayed.



4. Log in
   a. Enter the User name and Password.
   b. Select [OK].
      The User management screen is displayed.



5. Register or delete users or set access levels.
6. Select [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.

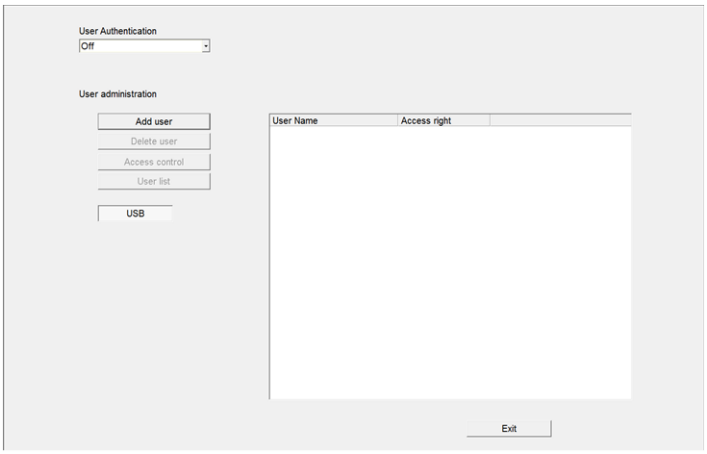
9.5.2 Configuring user authentication

Sets whether to perform user authentication at start-up or after a user has logged off.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].

3. Select [User Admin] from the Presets Setting Selection screen.
4. Enter the User name and Password on the User Authentication (login screen).
5. Select [OK].
   The User Admin (User Management) screen is displayed once access permissions are granted.



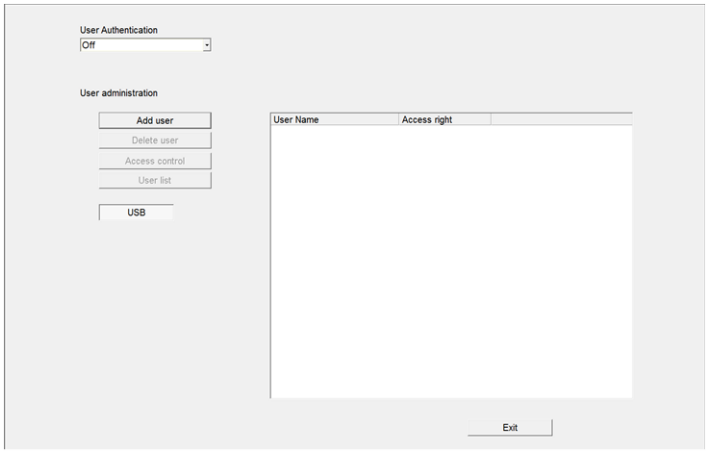
6. Configure user authentication from the User Authentication list.
   - "On"
     Enables users authentication. The login screen is displayed at start-up or after a user logs off.
   - "Off"
     Disables users authentication. The login screen is not displayed. All operations are enabled.
     NOTE: User Admin in Presets is only available to Level 1 users.
7. When the message appears on screen, select [OK]. Settings are applied from the next startup.

9.5.3 Registering users

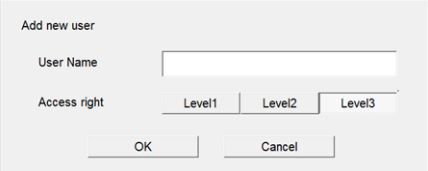
Changes the name of user settings.

Procedure

1. Display the preset [User Admin].
   a. Select the [Preset] icon from the [Accessories] tab in the function menu.
   b. Select [Set-Up].
   c. Select the [User Admin].
   d. Enter User name and Password on the User Authentication (Login screen).
   e. Select [OK].
      When authentication is complete, the User Admin screen is displayed.



2. Select [Add User].
   The Add New User dialog box is displayed.



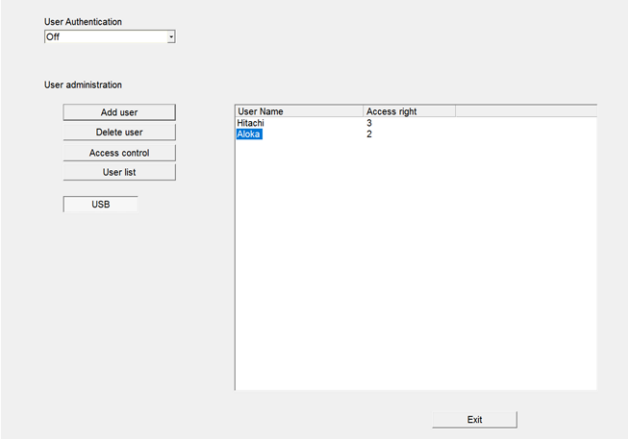
3. In the [User name] field, enter the user name by using no more than 16 alphanumeric characters.
4. Select the access permissions to be set.
5. Select [OK].
   The new user is registered and the display returns to the User Admin screen.
   If you select [Cancel], the display returns to the User Admin screen without registering any changes.

9.5.4 Deleting Registered Users

NOTE: No logged in user can be deleted.

Procedure

1. Display the [User Admin] for the preset.
   a. Select [Preset] from the [Accessories] tab in the function menu.
   b. Select [Set-Up].
   c. Select [User Admin] from the Presets Setting Selection screen.
   d. Enter the User name and Password on the login screen.
   e. Select [OK].
      When authentication is complete, the User Admin screen is displayed.

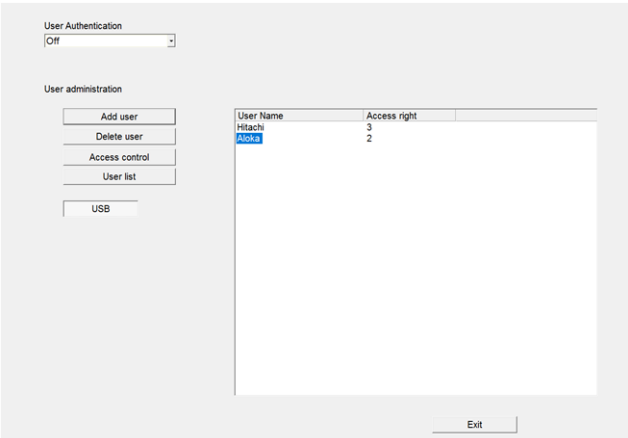


2. Select the desired user.
3. Select [Delete user].
4. From the Region field, select the desired applications.
   The message "Are you sure you want to delete the selected user name?" is displayed.
5. Select [Yes].
   The user is deleted and the display returns to the user management screen.
   If you select [No], the display returns to the User Admin screen without registering any changes.

9.5.5 Changing User Access Levels

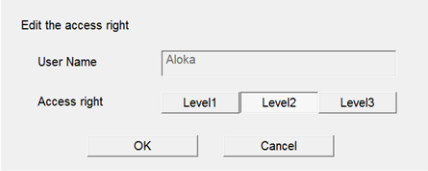
Procedure

1. Display the [User Admin] for the preset.
   a. Select [Preset] from the [Accessories] tab in the function menu.
   b. Select [Set-Up].
   c. Select [User Admin] from the Presets Setting Selection screen.
   d. Enter User name and Password on the User Authentication (Login screen).
   e. Select [OK].
      When authentication is complete, the User Admin screen is displayed.



2. Select the desired user.

3. Select [Access control].
   The "Edit the access right" dialog box is displayed.



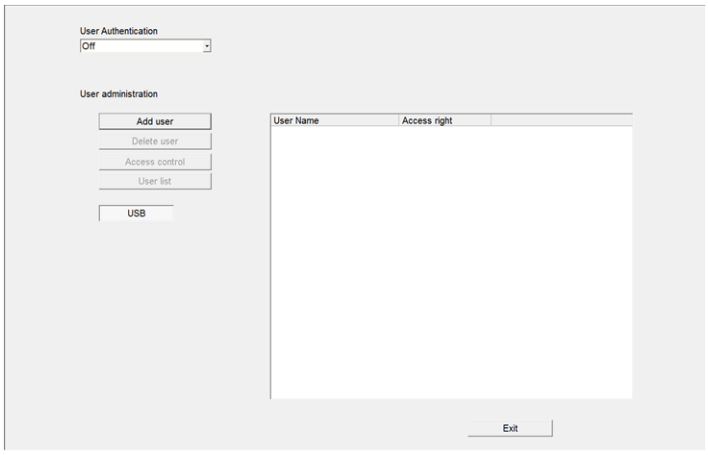
4. Select the level you want to change.
5. Select [OK].
   The user's level changes and the display returns to the User Admin.
   If you select [Cancel], the display returns to the User Admin screen without registering any changes.

9.5.6 Outputting user lists

This function outputs a list of the currently-registered user names and their levels in a CSV file to the designated media.
Connect USB flash memory to the system.

Procedure

1. Display [User Admin] from presets.
   a. Select [Preset] from the [Accessories] tab in the function menu.
   b. Select [Set-Up].
   c. Select the [User Admin].
   d. Enter User name and Password on the User Authentication (Login screen).
   e. Select [OK].
      When authentication is complete, the User Admin screen is displayed.



2. Select [User list].
   A list of the currently-registered user names and their levels is saved as a CSV file to the USB flash memory.
   If a file with the same name exists, the existing file is overwritten.

9.6 Preset Set-Up Menu

The Preset Set-Up Menu consists of presets which can be configured for each application.

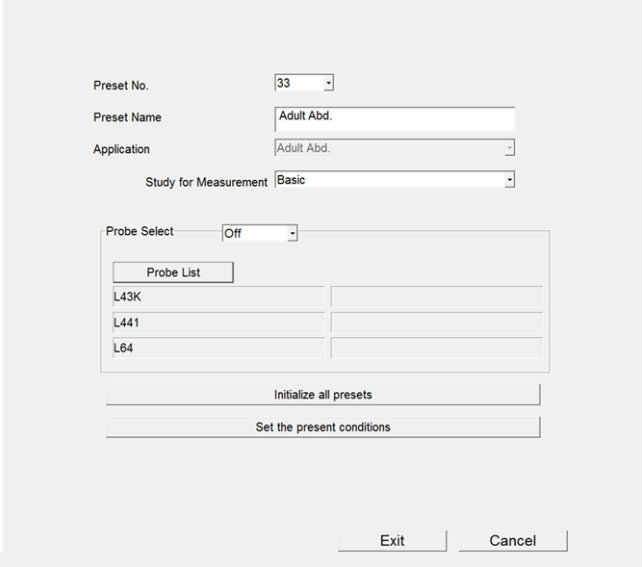
Preset Set-Up Menu	Registers the preset name, application, measurement study and other items related to the selected Preset No..
Display1	Makes settings related to the screen display.
Display2	Makes settings related to the screen display.
DISP-B, M	Specifies settings for B mode and M mode image display.
DISP-D, Color	Makes D, Color mode settings.
ID, Comment	Makes settings related to entering patient information and comments.
Graphics	Makes settings related to on-screen graphics.
Store, Cine	Makes settings for saving images.
Body Mark	Makes settings for displaying body marks on-screen and for the body mark menu.
Software Button	Sets the functions to be assigned to the Software button
Menu-Function	Makes settings for the functions assigned to the function menu.
Custom SW	Sets the functions to be assigned to the custom switches.
Custom-Foot SW	Sets the functions to be assigned to the optional foot switch.
Physiology	Makes settings for displaying physiological signals.
Image-B, M1	Specifies settings for B and M mode image adjustment.
Image-B, M2	Specifies settings for B and M mode image adjustment.
Focus	Makes Focus-related settings.
Post Processing	Makes settings for Post Processing.
Doppler1	Makes Doppler mode settings.
Doppler2	Makes Doppler mode settings.
Auto-optimizer	Makes settings for Auto-optimizer.
Color Flow	Makes Color Flow mode settings.
Power Doppler	Makes Power Doppler mode settings.
eFlow	Makes eFlow mode settings
Tissue Doppler	Makes Tissue Doppler mode settings.
TDI-Color	Makes TDI Color mode settings.
TDI-Power	Makes TDI Power Doppler mode settings
FAM	Makes settings related to the Free Angular M mode.
DISP-CHI, FI	Makes settings for Contrast Harmonic Images and Fundamental Images.
Image-CHI, FI1	Makes settings for Contrast Harmonic Images and Fundamental Images.
Image-CHI, FI2	Makes settings for Contrast Harmonic Images and Fundamental Images.

9.6.1 Preset Set-Up Menu

The Preset Set-Up Menu registers the preset name, application, measurement study and other items related to the selected Preset No.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.

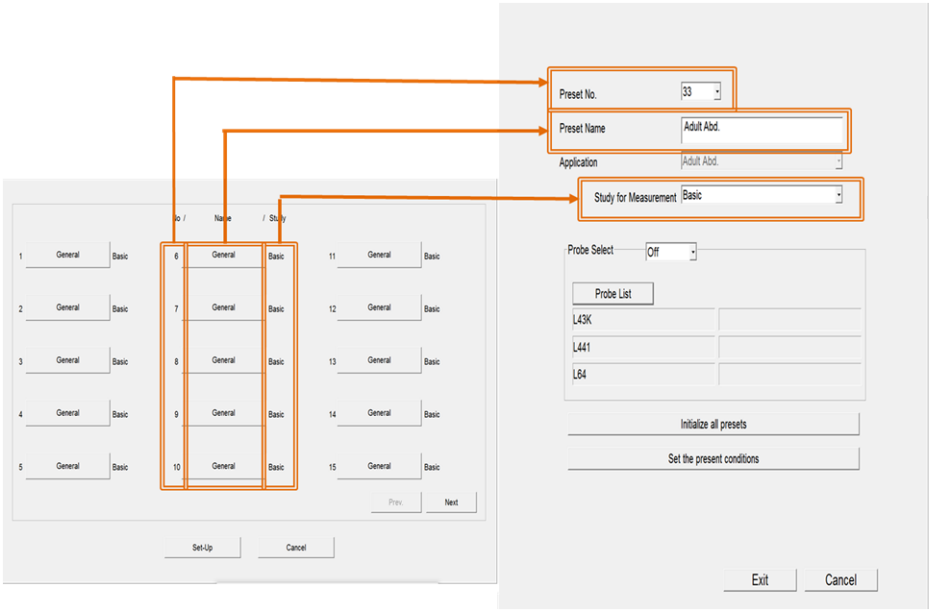


To initialize all the items of the specified preset as a batch, select [Initialize all presets].
To register the current system conditions as a batch, select [Set the present conditions].

(1) Changing Item Settings

Procedure

1. Display [Preset Set-Up Menu].
2. Select Preset No. from the drop-down list.
   The preset switches to that of the selected number.
3. Change item settings.



a. In the [Preset Name] field, enter the preset name by using the keyboard.

b. Select an examination area from the drop-down list of Application.

c. Select Study from the drop-down list of Study for Measurement.

4. Select [Exit].
   The changed settings are finalized and the preset setting selection list is displayed again.
   If you select [Cancel], the system returns to the setting selection list without making changes to the items of the selected preset.

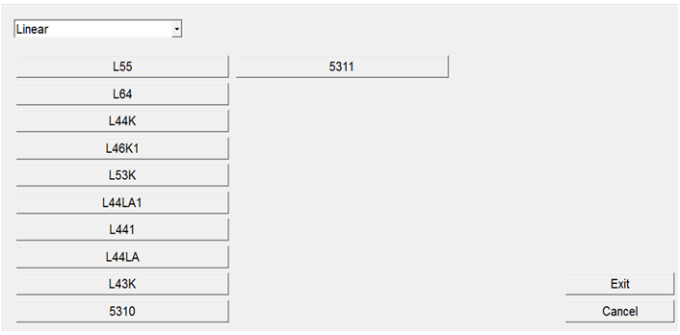
(2) Linking Presets with Probes

Procedure

1. Display [Preset Set-Up Menu].
   NOTE:: If necessary, select [Preset No.] from the drop-down list.

2. Register a probe to the Probe List.
   The Probe List is for configuring probes. The list also configures the Preset No. of the system, which switches when a probe is connected.

   a. Select [Probe List].
      Probe List is displayed.

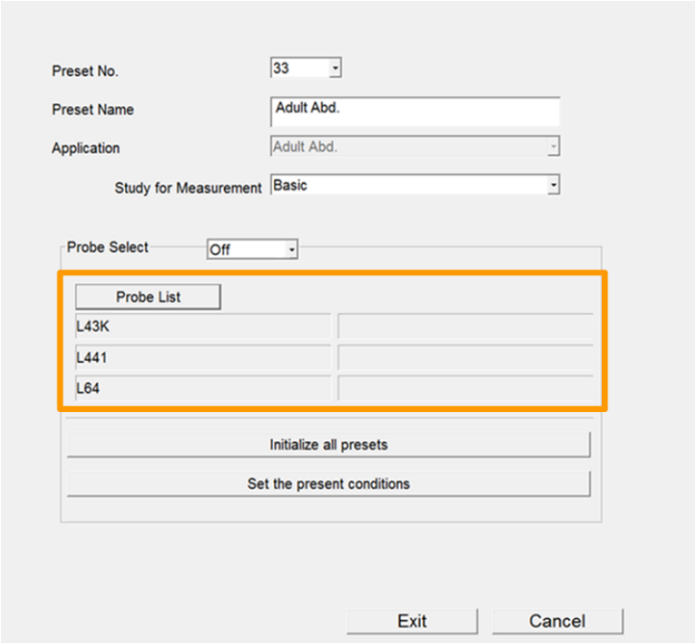


   b. Select the probe type from the drop-down list.

c. Select the probe name.
To deselect the selected probe
Select the currently selected probe name again.

d. Repeat steps b and c to configure the required probes.
Up to 6 probes can be configured per 1 preset.

e. Select [Exit].
The probes selected in the [Preset Set-Up Menu] are displayed.



3. Select [Probe Select].
Probe Select is for specifying the setting that switches probes when the preset is switched.

   - "On": When a probe registered in the Probe List is connected, the system switches to that probe.
     When two or more probes registered in the Probe List are connected, the system switches to the probe connected to the smaller connector number.
   - "Off": Configures the system to only switch the preset. Probes are not switched.

4. Select [Exit].
The changed settings are finalized and the preset setting selection list is displayed again.
If you select [Cancel], the system returns to the setting selection list without changing the Probe List.

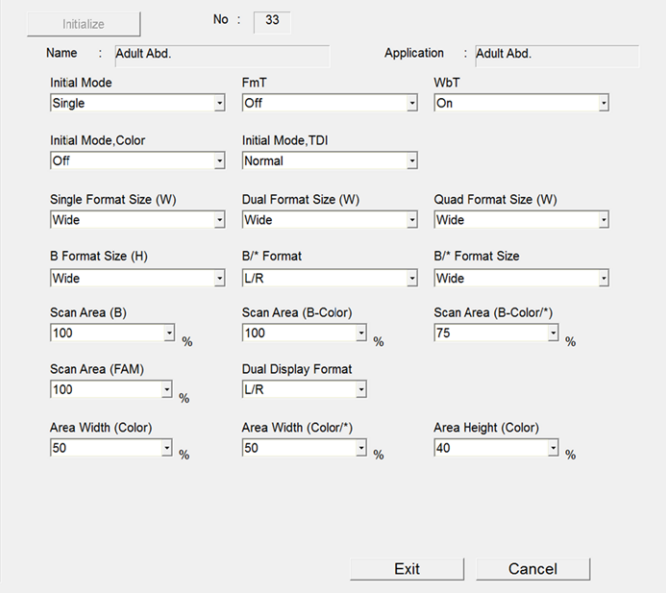
9.6.2 Display1

Makes settings related to the screen display.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.

2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Display1] from the Tree View.
   The following screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   The changed settings are finalized and the preset setting selection list is displayed again.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Display1 Settings

Item	Settings	Functions
Initial Mode	Single Dual Quad B/M B/PW B/CW	Sets the display mode at start-up.
FmT	Off On	Uses FmT (Filter-method Tissue Harmonic Imaging) settings for start-up of B mode. NOTE: When both FmT and WbT are set to "On", WbT is given priority.
WbT	Off On	Uses WbT(Wideband Tissue Harmonic Imaging) settings for start-up of B mode. NOTE: When both FmT and WbT are set to "On", WbT is given priority.

Item	Settings	Functions
Initial Mode, Color	Off	Turns off Color Flow, Power Doppler, and eFlow modes at startup.
	Color Flow Power Doppler eFlow	Turns on Color Flow, Power Doppler, and eFlow modes at startup.
Initial Mode, TDI	Normal	Sets the D, Color Flow, and Power Doppler modes to their normal conditions.
	TDI	Sets the D, Color Flow, and Power Doppler modes to their TDI conditions.
Single Format Size (W)	Normal Wide	Sets the width of B mode images when in 1B mode.
Dual Format Size (W)	Normal Wide	Sets the width of B mode images when in 2B mode.
Quad Format Size (W)	Normal Wide	Sets the width of B mode images when in 4B mode.
B Format Size (H)	Normal	Sets the height of the B mode image or the M mode image displayed in the B, 2B, B/D, B/M, or M mode to the normal height.
	Wide	Sets the height of the B mode image or the M mode image displayed in the B, 2B, 4B, B/D, B/M, or M mode to greater than normal. The image is displayed at increased scale.
B/* Format	L/R	Setting for displaying images side by side in the B/Sweep mode.
	U/L	Setting for displaying images above and below in the B/Sweep mode.
B/* Format Size	Normal	Sets the image to normal width display in the B/Sweep mode.
	Wide	Sets the width of the B/Sweep image to be wider than the normal display width when in L/R display. Sets the vertical height of the B mode image when in U/L display to about 1/2 the height of the sweep mode.
Scan Area (B)	25 to 100	Sets the scan area for B mode images at start-up (in 5% steps).
Scan Area (B-Color)	25 to 100	Sets the scan area for B mode images during B (Color) mode operation (in 5% steps).
Scan Area (B-Color/*)	25 to 100	Sets the scan area for B mode images during B(Color)/* mode operation (in 5% steps).
Scan Area (FAM)	25 to 100	Sets the scan area for B mode images during B (FAM) mode operation (in 5% steps).
	Auto	Sets the B mode scan area for B mode images during B (FAM) mode operation to follow the FAM cursor.
Dual Display Format	L/R	Sets images to be horizontally tiled in the 2B mode.
	U/L	Sets images to be vertically tiled in the 2B mode.

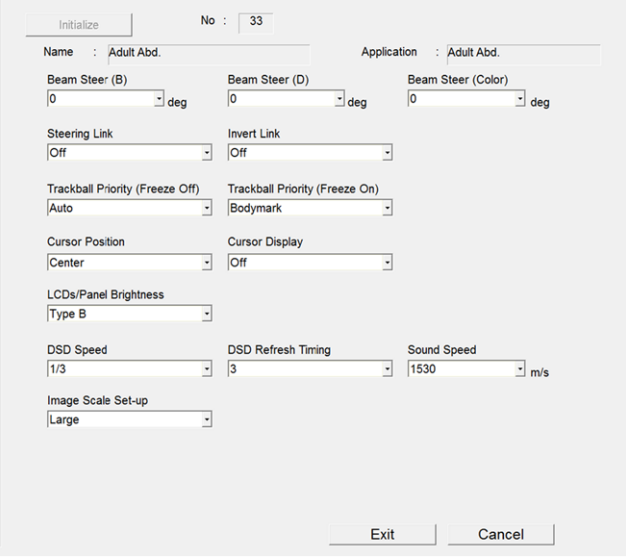
Item	Settings	Functions
Area Width (Color)	15 to 100	Sets the width of the flow area during B (Color) mode operation (in 5% steps). (B mode is assumed 100%)
Area Width (Color/*)	15 to 100	Sets the width of the flow area during B (Color)/D mode operation (in 5% steps). (B mode is assumed 100%)
Area Height (Color)	25 to 100	Sets the height of the flow area during B (Color) or B (Color)/D mode operation (in 5% steps). (B mode is assumed 100%)

9.6.3 Display2

Makes settings related to the screen display.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Display2] from the Tree View.
   The following screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Display2 Settings

Item	Settings	Functions
Beam Steer (B)	-30 to 30	Sets the deflection of the B mode image in increments of 5°.
Beam Steer (D)	-30 to 30	Sets the deflection of the Doppler cursor in increments of 5°. NOTE: When both FmT and WbT are set to "On", WbT is given priority.
Beam Steer (Color)	-30 to 30	Sets the deflection of the flow area in increments of 5°.
Steering Link	Off On	Configures the system to Invert Spectrum if the polarity changes due to changes in the deflection angle of the beam of a linear probe.
Invert Link	Off On	Sets the Color Polarity to follow spectrum inversion.
Trackball Priority (Freeze Off)	Auto	Sets the trackball function to be restored, when the freezing of an image is canceled, to the state it was in before the image was frozen.
	Unchanged	Sets the trackball function to continue, when the freezing of an image is canceled, in the state it was in before the freezing of the image was canceled.
Trackball Priority (Freeze On)	Search	Sets the trackball function while frozen to "Playback".
	Bodymark	Sets the trackball function while frozen to "Body Mark".
	Comment	Sets the trackball function while frozen to "Comment".
	Measurement	Sets the trackball function while frozen to "Measurement".
	Unchanged	Sets the system to continue the trackball function when frozen to what it was before freezing.
Cursor Position	Left Center Right	Sets the cursor position.
Cursor Display	Off	Sets to display the cursor if the preset is restarted.
	On	Sets to hide the cursor if the preset is restarted.
LCDs/Panel Brightness	Type A Type B Type C	Select from among the combinations, Type A, Type B or Type C, in the Monitor LCDs/Panel Brightness Setting of Presets ([Common Preset > Common3)] to set the brightness of the display.
DSD Speed	1/1 1/2 1/3 1/4 1/10	Setting for the playback speed of the slow-motion display side in the DSD mode.
DSD Refresh Timing	1 to 10	Sets the amount of memory to be allocated for slow-motion in the DSD mode.
Image Scale Set-up	Large Medium Small	Sets the image scale as Large or Medium or Small.

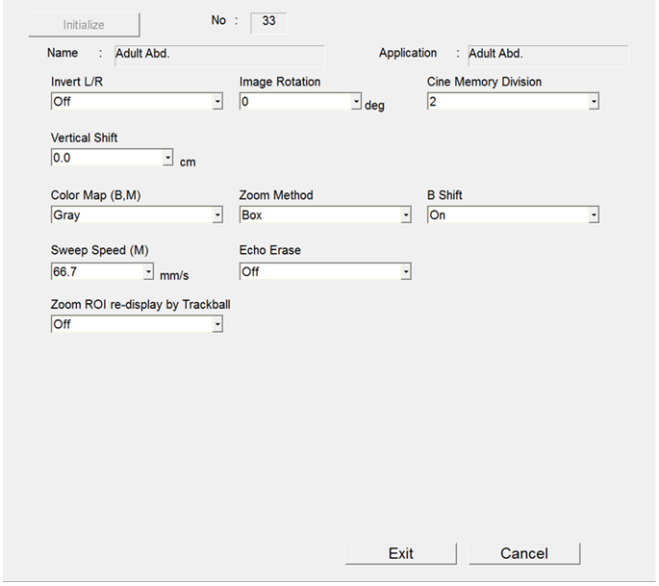
Item	Settings	Functions
Sound Speed	1400 to 1650	Sets the speed of sound (in 10 m/s steps).

9.6.4 DISP-B, M

Makes B, M mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [DISP-B, M] from the Tree View.
   The following screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

DISP-B, M Settings

Item	Settings	Functions
Invert L/R	Off On	Sets the scan direction at start-up.

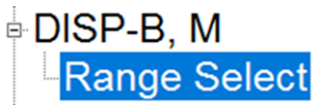
Item	Settings	Functions
Image Rotation	0 90 180 270	Sets the angle of rotation of the image. The image is displayed rotated to the set angle. The image is displayed without rotation when the angle is 0 degrees.
Cine Memory Division	OFF 2 4	Sets the number of Cine Memory at startup of presets.
Vertical Shift	-10.0 to 20.0	Sets the offset in the depth direction of B mode images in 0.1 cm steps.
Color Map (B,M)	Gray	Sets the display to add no coloration to images.
	A	Sets the image display adding from blue to orange.
	B	Sets the image display with blue color.
	C	Sets the image display with blue color lighter than B .
	D	Sets the image display with orange color.
	E	Sets the image display to have brown brightness characteristics.
	F	Sets the image display to have lighter brown brightness characteristics than E .
	G	Sets the image display to have blue and yellow brightness characteristics.
Zoom Method	Center	Specifies the setting that sets the zoom of images based on the center of the images.
	Box	Sets the system to display a zoom box for zooming in on images.
B Shift	Off	Sets the B mode image to not follow the cursor movement in the B/D mode.
	On	Sets the B mode image to follow the cursor movement in the B/D mode.
Sweep Speed (M)	25.0 33.3 50.0 66.7 100.0 150.0 200.0	Sets the sweep speed in the M mode.
Echo Erase	Off	Sets the system not to use the Echo Erase function at start-up.
	1 to 19	Sets the erase region when Echo Erase is "On".
Zoom ROI re-display by Trackball	Off	During zooming, this configures the system so operating the trackball allows the Zoom Box be moved in the zoomed state.
	On	During zooming, this configures the system so operating the trackball makes it return to the state before zooming and allows the Zoom Box be moved.

(1) Range Select Settings

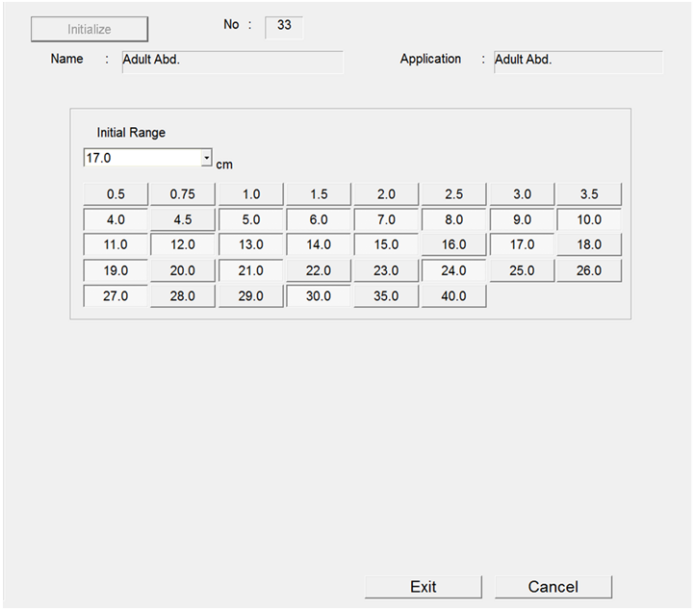
Makes settings related to display depth when presets start up.

Procedure

1. Select the [+] mark displayed in front of DISP-B, M in the tree view.
   Range Select is displayed.



2. Select [Range Select].
   The following screen is displayed.



3. Sets the display depth when a preset is started up and the steps for display depth.
4. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
5. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

9.6.5 DISP-D, Color

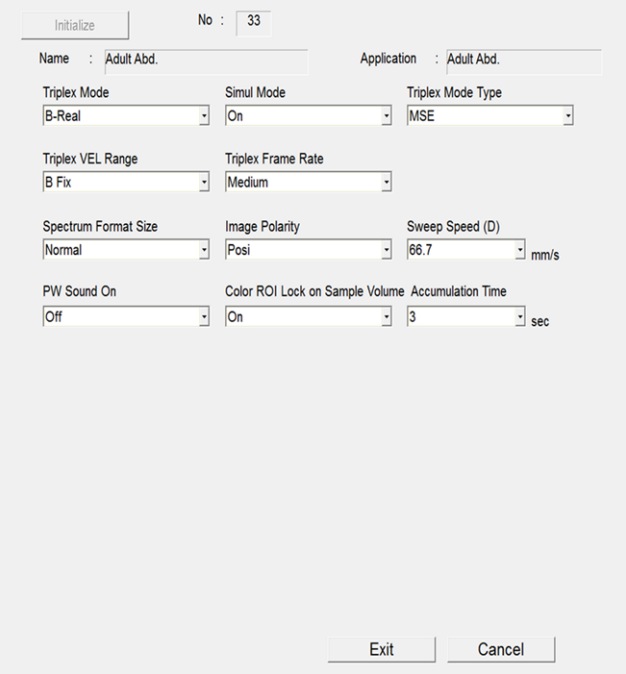
Makes D & Color mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.

The Preset Set-Up Menu for the selected preset is displayed.

4. Select [DISP-D, Color] from the Tree View.
   The following screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

DISP-D, Color Settings

Item	Settings	Functions
Triplex Mode	Triplex	Sets to B-Real and D-Real display when switched to B/D mode.
	B-Real	Sets to B-Real and D-Blank display when switched to B/D mode.
	D-Real	Sets to B-Freeze and D-Real display when switched to B/D mode while the D cursor is displayed in B mode.
Simul Mode	Off On	If Triplex Mode is "B-Real" or "D-Real", and if [PW] is selected, this sets Triplex to On or Off.
Triplex Mode Type	MSE	When in Triplex, this interpolates the Doppler waveform.
	Refresh	When in Triplex, this does not interpolate the Doppler waveform.

Item	Settings	Functions
Triplex VEL Range	Low	When in the B (Color) / D simultaneous mode, this sets the velocity range of the D mode to be the same as the B (Color) mode. The velocity ranges increase at a ratio of 1:1.
	High	When in the B (Color) / D simultaneous mode, this sets the velocity range of the D mode to twice that of the B (Color) mode. The velocity ranges increase at a ratio of 1:2..
	B Fix	When in the B (Color) / D simultaneous mode, this sets the velocity range of B (Flow) to be constant and the velocity range only increases in the D mode.
Triplex Frame Rate	Low Medium High	This sets the frame rate of the B mode image when in the B (Color) / D simultaneous mode.
Spectrum Format Size	Normal Wide	Sets the width of the longitudinal spectrum in the B/D and D modes.
Image Polarity	Posi Nega	Sets the polarity of the D mode image.
Sweep Speed (D)	25.0 33.3 50.0 66.7 100.0 150.0 200.0	Sets the sweep speed in the D mode.
PW Sound On	Off On	Sets the PW sound when the D Cursor is displayed on the B mode image.
Color ROI Lock on Sample Volume	Off On	When the sample volume is moved, this sets the flow area to follow.
Accumulation Time	1 2 3	Sets the time to hold pixels (seconds) during capture.
	Continuous	Sets to hold until freeze.

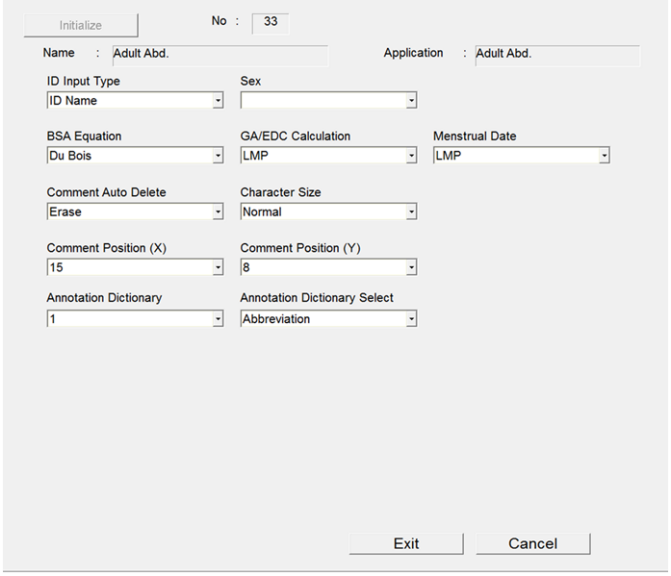
9.6.6 ID, Comment

Makes settings for entering patient information and comments.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [ID, Comment] from the Tree View.

ID, Comment is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

ID, Comment Settings

Item	Settings	Functions
ID Input Type	ID Name ID Obstetrics ID Gynecology ID BSA ID Urology ID BMI	Sets the additional ID input items relevant to the application.
Sex	Male Female Other (Blank)	Sets the default sex.
BSA Equation	Du Bois Boyd Shintani	Sets the formula for the BSA index.
GA/EDC Calculation	LMP BBT EGA EDC GA	Sets the method for calculating the gestational week and the expected delivery date.
Menstrual Date	LMP BBT	Sets the method for entering the menstruation date.

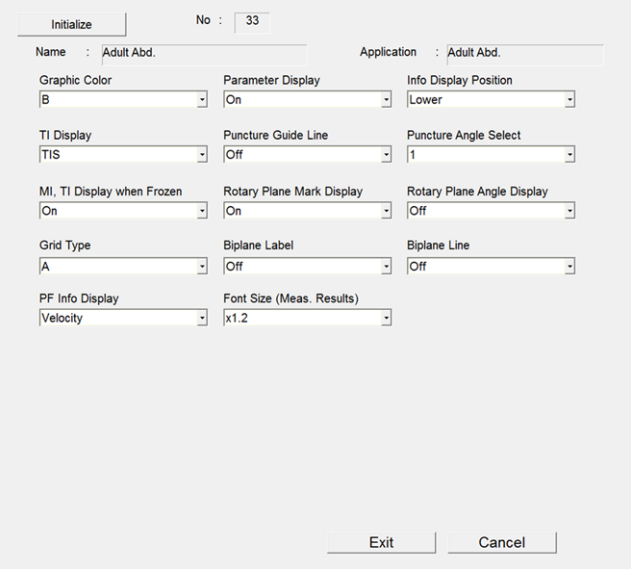
Item	Settings	Functions
Comment Auto Delete	Erase	Sets to erase comments when freezing is canceled.
	Remain	Sets to display comments even when freezing is canceled.
Character Size	Normal	Sets the font of comments to standard font size.
	Large	Sets the font of comments to be twice the normal size.
Comment Position (X)	1 to 79	Sets the X coordinate of the home position when entering comments.
Comment Position (Y)	1 to 36	Sets the Y coordinate of the home position when entering comments.
Annotation Dictionary	1 to 6	Sets the dictionary when using the Annotation function.
Annotation Dictionary Select	Full Spelling	Sets Annotation to full spelling.
	Abbreviation	Sets Annotation to abbreviation.

9.6.7 Graphics

Makes settings related to on-screen graphics.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Graphics] from the Tree View.
   The following screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Graphics Settings

Item	Settings	Functions
Graphic Color	A B C D E User	Sets the colors of text and graphics on-screen.
Parameter Display	Off On	Sets the automatic display of the image display area.
Info Display Position	Lower	Sets the automatic display of the image display area at the bottom of the screen.
	Upper	Sets the automatic display of the image display area at the top of the screen.
TI Display (***)	TIS	Set the acoustic power index display to the thermal index for soft tissue. NOTE: This conforms to the standard shown in "***".
	TIB	Set the acoustic power index display to the thermal index for bones. NOTE: This conforms to the standard shown in "***".
	TIC	Set the acoustic power index display to the thermal index for cranial bones. NOTE: This conforms to the standard shown in "***".
Puncture Guide Line	Off On	Sets to display the puncture guideline at start-up.
Puncture Angle Select	1 to 8	Sets the angle of incidence of the puncture metal fitting.
MI, TI Display when Frozen	Off	Sets MI/TI to be hidden when frozen.
	On	Sets MI/TI to be displayed regardless of freezing.
Rotary Plane Mark Display	Off On	Sets to display the rotary plane mark of the rotary plane transesophageal probe.
Rotary Plane Angle Display	Off	Sets to hide the angle when the rotary plane mark of the rotary plane transesophageal probe is displayed.
	On	Sets to display the angle when the rotary plane mark of the rotary plane transesophageal probe is displayed.
Grid Type	A B C D	Sets the grid display.
Biplane Label	Off On	Sets to display the biplane label of the biplane transrectal probe.

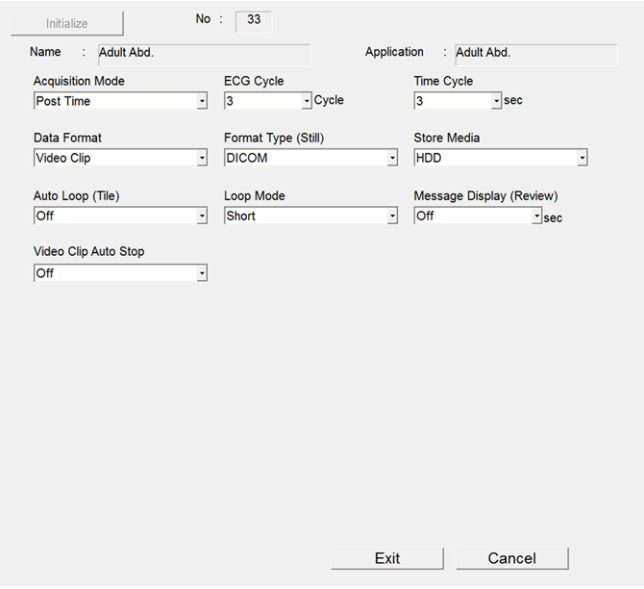
Item	Settings	Functions
Biplane Line	Off On	Sets to display the biplane line of the biplane transrectal probe.
PF Info Display	Off	For Power Doppler, eFlow and TDI Directional Power Doppler, the PRF and aliased flow velocity values are hidden.
	PRF	For Power Doppler, eFlow and TDI Directional Power Doppler, the PRF value is displayed.
	Velocity	For Power Doppler, eFlow and TDI Power Doppler, this sets the system to display the aliasing flow velocity.
Font Size (Meas. Results)	×1	Sets the font size of measurement results to standard.
	×1.2	Sets the font size of measurement results to approximately 1.2 times larger.
	×1.4	Sets the font size of measurement results to approximately 1.4 times larger.

9.6.8 Store, Cine

Makes settings for saving images.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Store, Cine] from the Tree View.
   The following screen is displayed.



5. Change item settings.

To return to the position of the factory default

Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Store, Cine Settings

Item	Options	Description
Acquisition Mode	Pre Time	Sets the capture range of videos to be between the time immediately before selecting [User 3 (Store)] and the set time (1 to 16 seconds).
	Pre ECG	Sets the capture range of videos to be between the R-wave captured immediately before pressing [User 3 (Store)] and the R-wave captured immediately before the set number of heartbeats (1 to 10 heartbeats).
	Post Time	Sets the capture range of videos to be between the time immediately after selecting [User 3 (Store)] and the set time (1 to 16 seconds).
	Post ECG	Sets the capture range of videos to be between the R-wave captured immediately after pressing [User 3 (Store)] and the R-wave captured immediately before the set number of heartbeats (1 to 10 heartbeats).
	Manual	Sets the capture range of videos to be between the time immediately after selecting [User 3 (Store)] and when [User 3 (Store)]is selected again.
ECG Cycle	1 to 10	Sets the capture time of videos by using the number of heartbeats (cycles).
Time Cycle	1 to 16	Sets the capture time of videos in seconds.
Data Format	Line Video Clip	Sets the save format of loop playback images.
Format Type (Still)	DICOM JPEG BMP TIFF	Sets the storage format of still images.
Store Media	HDD USB CD-R Buffer DVD	Sets the storage destination when [User 3 (Store)] is selected.
	NET (DICOM)	Sets the storage destination to the network server and sends 1 image in the DICOM format when [User 3 (Store)] is selected.
Auto Loop (Tile)	Off On	After videos in the Line format are saved, this sets the images to be automatically played back in a loop.

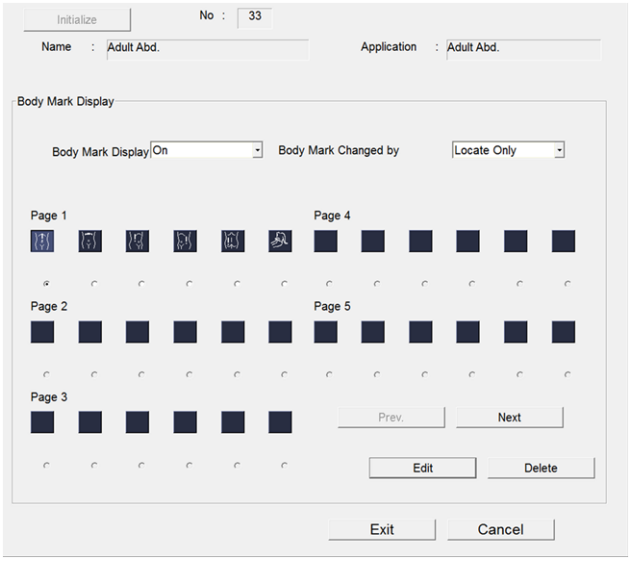
Item	Options	Description
Loop Mode	Short	Sets synchronized loop playback of multiple images to the image with the shortest loop time.
	Long	Sets synchronized loop playback of multiple images to the image with the longest loop time.
	Align	Sets synchronized loop playback of multiple images to the image with the longest loop time. The playback speed of images with short loop times are adjusted to the image with the longest loop time.
	Free Run	Turns off the synchronized loop playback of multiple images.
Message Display (Review)	Off	IfLine Formatis to be converted toImage, this sets the warning dialog to be hidden.
	16	If Line Format is to be converted toImage, a warning dialog box is displayed if a video file of 16 seconds or more exists.
Video Clip Auto Stop	Off	After saving asVideo Clip, keeps displaying in real time.
	On	The image freezes after being saved as a Video Clip.

9.6.9 Body Mark

Makes settings for displaying body marks on-screen and for the body mark menu.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Body Mark] from the Tree View.
   The Body Mark screen is displayed.



5. Change item settings.
   Configuring the display of body marks on images

Item	Options	Description
Body Mark Display	Off On	Sets the display of body marks when the system is started or application is changed.
Body Mark Changed by	Locate Only trackball	Sets to switch the body mark when the probe mark is moved left or right with the trackball.

   Setting the default body mark
   Select the radio button of the body mark to be the default.
   Switching the pages
   To display Pages 6 through 10, select [Next].
   To return to Pages 1 through 5, select [Prev.].
   To return to the position of the factory default
   Select [Initialize].

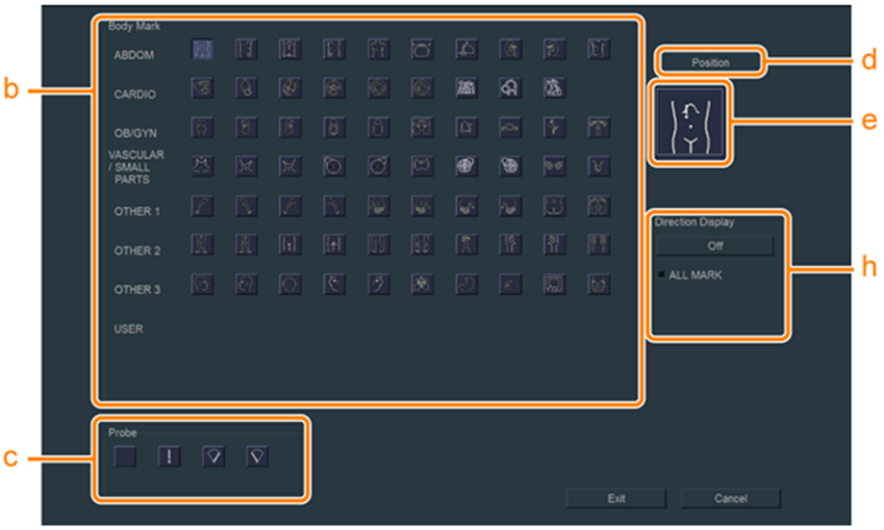
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

(1) Changing the Body Mark Displayed in the Body Mark Menu

Procedure

1. Use Body Mark in Presets to select the body mark to change.
2. Change the body mark.
   Deleting body marks (leaving the field blank)
   Select [Delete].
   Replacing the body mark

   a. Select [Edit].
      The following screen is displayed.



   b. b Select the body mark to be set.

   c. Select the probe mark to be displayed in the probe field.

d. Select [Position].

e. Use the trackball to move the position of the probe mark.

f. Use [Pointer] rotary encoder to adjust the orientation of the probe mark.

g. Press the [Enter]key.

h. Set right/left indication with Direction Display.
Setting the L/R display for all body marks
After putting a check next to ALL MARK, set the Direction Display to "On"/"Off".
L/R is not displayed with body marks that do not require it.
When Direction Display is set to "On", "L/R", which stands for "left and right", is displayed in the body mark.When set to "Off", the L/R display disappears.

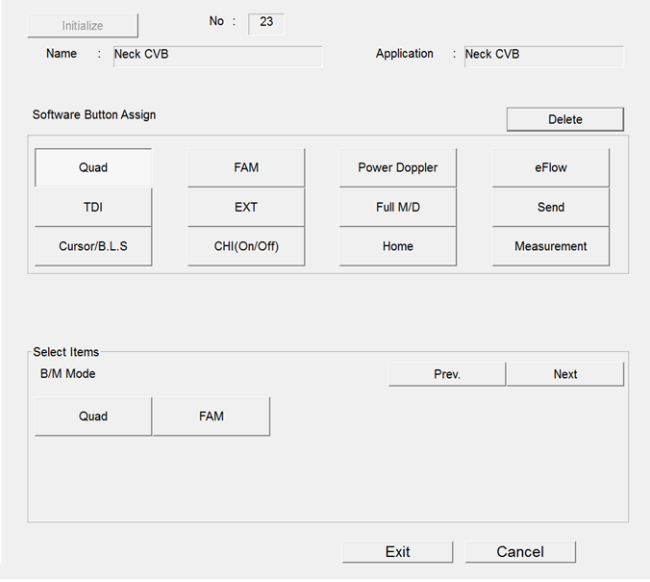
i. Select [Exit].

9.6.10 Software Button

Sets the functions to be assigned to the optional Software Buttons.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Software Button] from the Tree View.
   The following screen is displayed.



5. Select the button to be configured.
   A list of assignable functions is displayed under Select Items with Prev./Next option.
6. Change the functions of the button.
   Registering other functions

Select the name of the function to register.
If the desired function name is not in the Select Items list, change the list by selecting Prev./Next button.
Deleting registered functions
Select the button from which the assigned function to be deleted and select Delete option.
The button becomes blank.
To return to the position of the factory default
Select [Initialize].

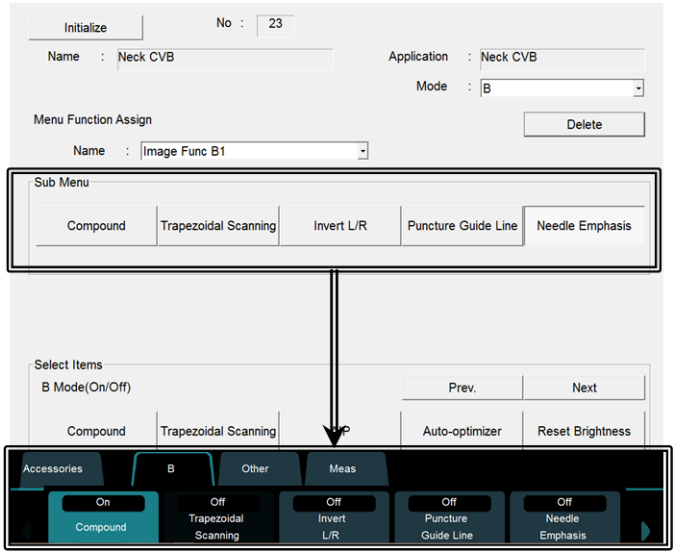
7. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

9.6.11 Menu-Function

Makes settings for saving images.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Menu-Function] from the Tree View.
   Menu Function Assign is displayed.



5. Select the mode whose settings you want to change from the [Mode] drop-down list.
6. Select the page whose settings you want to change from the [Name] drop-down list.
7. Set the menu area.
   Registering a menu
   The current settings of the menu area are displayed in Sub Menu.

a. Select the menu whose [Sub Menu] settings you wish to change.

b. Select the menu items to register with [Select Items].

Deleting registered menus

a. Select the menu whose [Sub Menu] you wish to delete.

b. Select [Delete].

To return to the position of the factory default
Select [Initialize].

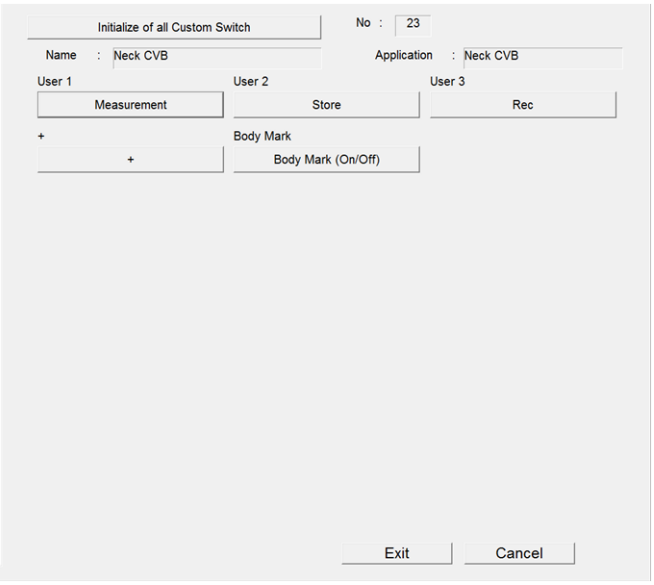
8. Select the [Exit].
This finalizes the changed settings and redisplays the preset setting selection list.
Select [Cancel] to discard the changes and return to the preset setting selection list.

9.6.12 Custom SW

Sets the functions to be assigned to the optional Custom switches.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
The preset setting selection list is displayed.
3. Select a preset from the Name list.
The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Custom SW] from the Tree View..
The following screen is displayed.



5. Select the switch to be configured.
A list of assignable functions is displayed.
6. Change the functions of the switch.
Registering other functions
Select the name of the function to register.

If the desired function name is not in the display list, change the list type from the drop-down list.

Deleting registered functions

Select the name of the registered function from the displayed list.

The function name becomes deselected.

To return to the position of the factory default

Select [Initialize of all Custom Switch].

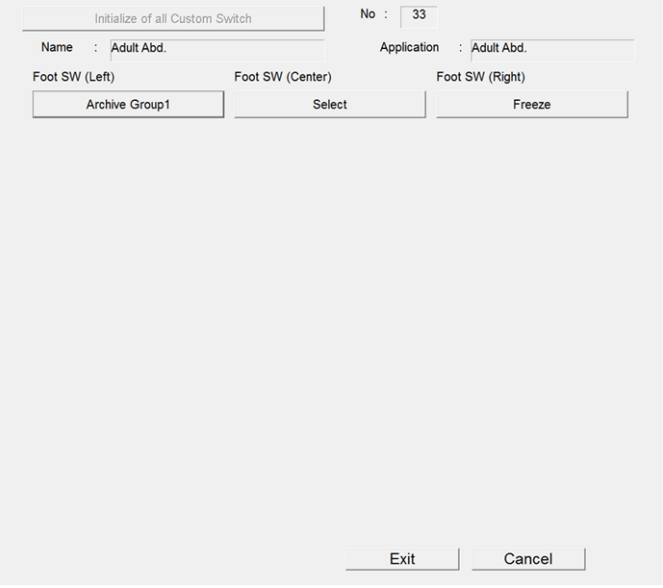
7. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

9.6.13 Custom-Foot SW

Sets the functions to be assigned to the optional foot switch.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Custom-Foot SW] from the Tree View.
   The following screen is displayed.



5. Select the switch to be configured.
   A list of assignable functions is displayed.
6. Change the functions of the switch.
   Registering other functions
   Select the name of the function to register.

If the desired function name is not in the display list, change the list type from the drop-down list.

Deleting registered functions

Select the name of the registered function from the displayed list.

The function name becomes deselected.

To return to the position of the factory default

Select [Initialize of all Custom Switch].

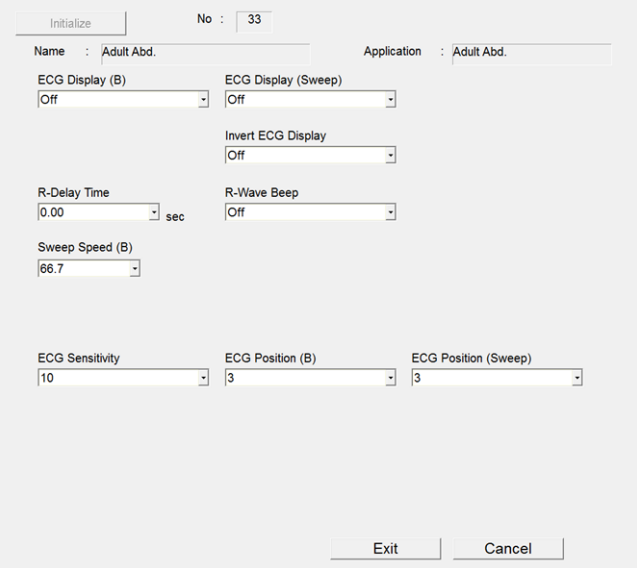
7. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

9.6.14 Physiology

Makes settings for displaying physiological signals.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Physiology] from the Tree View.
   Physiology is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Physiology Settings

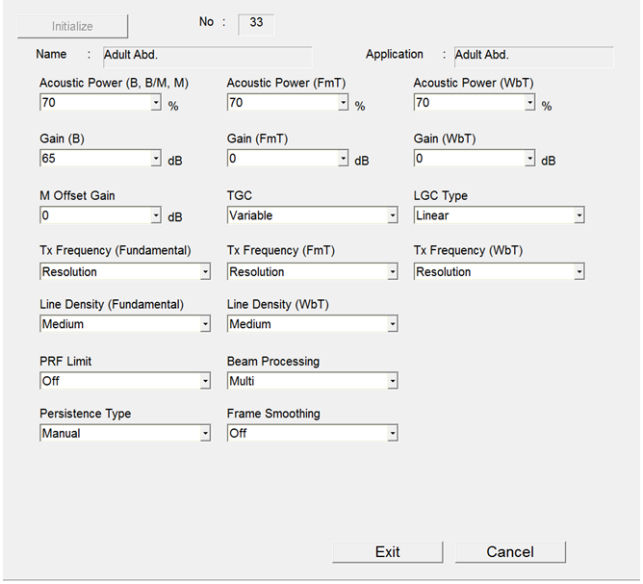
Item	Options	Description
ECG Display (B)	Off On	Configures the ECG display when in the B mode.
ECG Display (Sweep)	Off On	Configures theECG display when in the sweep mode.
Invert ECG Display	Off	Specifies the setting to display an ECG waveform using input signal polarity.
	On	Sets to invert the display of polarity ofECG waveform signal.
R-Delay Time	0.00 to 2.55	If ECG SYNC is "On", this sets the time phase from the R-wave when capturing aB mode image in increments of 0.01 second.
R-Wave Beep	Off On	Sets the R-wave detection sound.
Sweep Speed(B)	25.0 33.3 50.0 66.7 100.0 150.0 200.0	Sets the sweep speed of physiological signal display in the B mode.
ECG Sensitivity	1 to 32	Sets the sensitivity of the ECG waveform.
ECG Position (B)	1 to 32	Sets the position of the ECG waveform in the B mode.
ECG Position (Sweep)	1 to 32	Sets the position of the ECG waveform in the sweep mode.

9.6.15 Image-B, M1

Makes settings for B, M mode images.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Image-B, M1] from the Tree View.
   The Image-B, M1 screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Image-B, M1 Settings

Item	Options	Description
Acoustic Power (B, B/M, M)	0 to 100	Sets transmission output when in the B, B/M , M modes.
Acoustic Power (FmT)	0 to 100	Sets transmission output when in the FmT modes.
Acoustic Power (WbT)	0 to 100	Sets transmission output when in the WbT modes.
Gain (B)	10 to 90	Sets the gain value in B mode at start-up.
Gain (FmT)	-30 to 30	Sets the gain value when FmT is On. Sets the correction value of Gain(B).
Gain (WbT)	-30 to 30	Sets the gain value when WbT is On. Sets the correction value of Gain(B).
M Offset Gain	-30 to 30	Sets the gain value in M mode at start-up. Sets the correction value of Gain(B).
TGC	Fixed	Adjusts and configures the display depth to always be at a set ratio.
	Variable	Changes and configures the adjustable range of TGC to be even across the image display range.
LGC Type	Linear V1 V2 V3	Sets the lateral gain pattern.

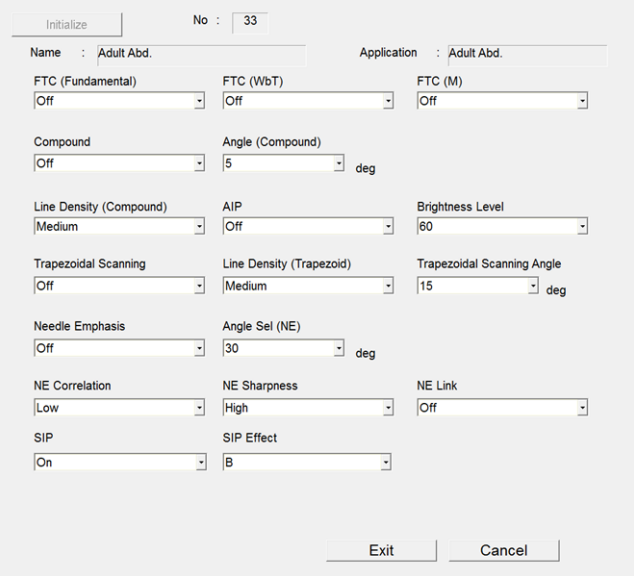
Item	Options	Description
Tx Frequency (Fundamental)	Penetration Standard Resolution High	Sets the transmission frequency at startup.
Tx Frequency (FmT)	Penetration Standard Resolution High	Sets the transmission frequency at FmT On.
Tx Frequency (WbT)	Penetration Standard Resolution High	Sets the transmission frequency at WbT On.
Line Density (Fundamental)	Low	Sets the scan line density to Low.
	Medium	Sets the scan line density to Med.
	High	Sets the scan line density to High.
Line Density (WbT)	Low	Sets the scan line density to Low.
	Medium	Sets the scan line density to Med.
	High	Sets the scan line density to High.
PRF Limit	Off On	Sets the frame rate limit.
Beam Processing	Multi	Sets to scanning while simultaneously receiving multiple beams when in B mode.
	Single	Specifies the setting to scan images with the standard number of scanning lines when in B mode.
Persistence Type	Auto	Sets the frame correlation setting according to the frame rate of the B mode image.
	Manual	Sets the frame correlation setting to a value of the user's choice.
Frame Smoothing	Off On	Sets frame smoothing.

9.6.16 Image-B, M2

Makes settings for B, M mode images.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Image-B, M2] from the Tree View.
   Image-B, M2 is displayed.

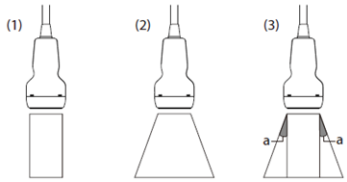


5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Image-B, M2 Settings

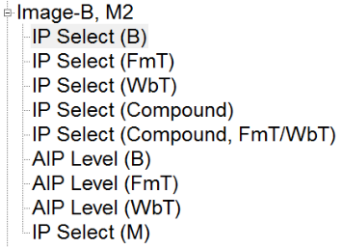
Item	Options	Description
FTC (Fundamental)	Off On	Sets to perform image processing to accentuate and emphasize the edges of B mode images at startup.
FTC (WbT)	Off On	Sets to perform image processing to accentuate and emphasize the edges of images when WbT is On.
FTC (M)	Off On	Sets to perform image processing to accentuate and emphasize the edges of M mode images at startup.
Compound	Off On	Sets the process to synthesize ultrasound beams from multiple different angles to reduce artifacts.
Angle (Compound)	5 to 30	When operating with Compound, this sets the angle (in units of 5 degrees) for transmitting ultrasound beams.
Line Density (Compound)	Low Medium High	Sets the scan line density when operating with Compound The number of scanning lines increases in the order of "Low", "Medium", "High".
AIP	Off On	Specifies image processing settings, such as settings for emphasizing the boundaries of various characteristics and for removing speckle in the homogeneous area for smoothing.
Brightness Level	Auto	Automatically sets the target average brightness in Auto-optimizer.
	40 to 80	Sets the target average brightness in Auto-optimizer.

Item	Options	Description
Trapezoidal Scanning	Off	Sets the probe width as the width of the field of view of the linear probe. Refer to the figure below (1).
	On	Sets trapezoidal display for images of the linear probe. Refer to the figure below (2).
Line Density (Trapezoid)	Low Medium High	Sets the scan line density during Trapezoidal Scan. The number of scanning lines increases in the order of "Low", "Medium" "High".
Trapezoidal Scanning Angle	5 to 30	Sets the angle (a) of the linear probe in the figure below (3) in increments of 5 degrees. 
Needle Emphasis	Off	Turns off Needle Emphasis
	On	Starts up Needle Emphasis.
Angle Sel (NE)	-40 to +40	Sets the Graphic Line angle in units of 5°.
NE Correlation	High Medium Low	Sets the residual image of the puncture needle echo. To minimize display of the residual image, set to "Low".
NE Sharpness	High Medium Low	Sets the thickness of the displayed puncture needle echo.
NE Link	Off On	Sets whether the Puncture Guide Line and Needle Emphasis are linked.
SIP	Off On	Specifies the setting that makes images smoother through a combination of processing to emphasize the boundaries between tissues and processing to remove noise.
SIP Effect	A B C	Sets the level of image processing.

(1) IP Select, AIP Level Settings

Procedure

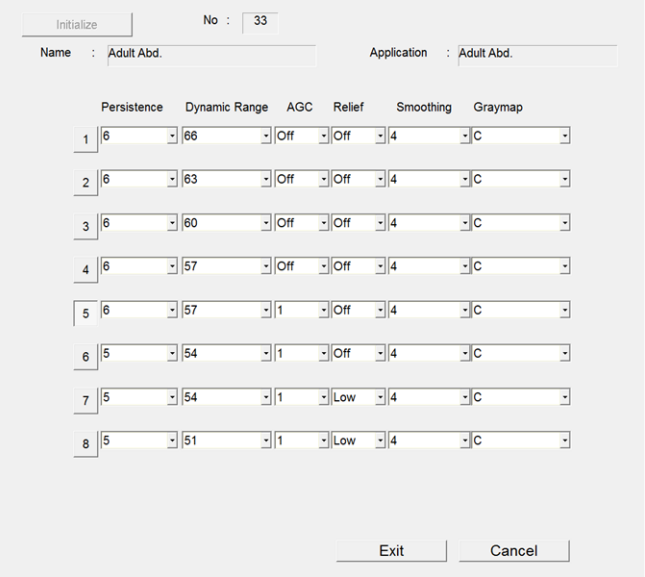
1. Select the [+] mark displayed in front of Image-B, M2 in the Tree view.
   The following tree view is displayed.



2. Select relevant items and change their settings.
   - Settings for [IP Select (B)], [IP Select (FmT)], [IP Select (WbT)], [IP Select (Compound)], and [IP Select (Compound, FmT/WbT)]
   - Settings for [AIP Level (B)], [AIP Level (FmT)], and [AIP Level (WbT)]
   - [IP Select (M)] Settings

   To return to the position of the factory default
   Select [Initialize].
3. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

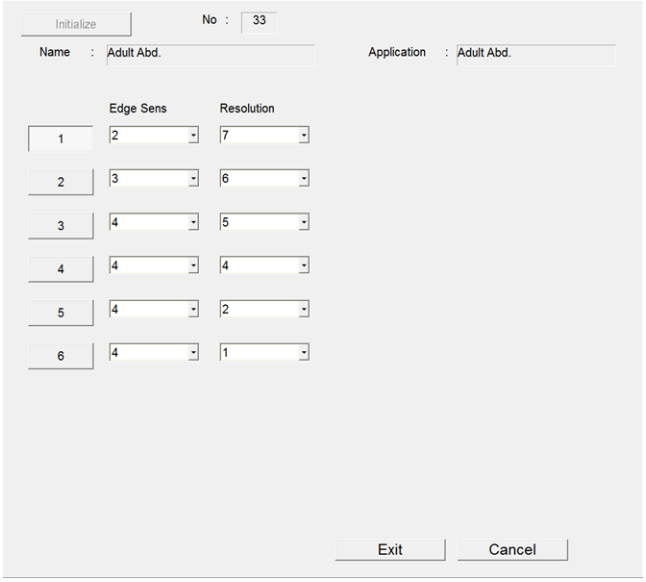
IP Select (B), IP Select (FmT), IP Select (WbT), IP Select (Compound), IP Select (Compound, FmT/WbT) Settings



Item	Options	Description
No.	1 to 8	Sets the default No.
Persistence	Off	Sets the correlation between adjacent frames to Off.
	1 to 15	Sets the frame correlation rate.
Dynamic Range	36 to 96	Sets the Dynamic range.
AGC	Off	Sets the tissue boundary emphasis to Off
	1 to 15	Sets the level of tissue boundary emphasis.
Relief	Off Low Med High	Sets the edge enhancement of B mode image.
Smoothing	Off	Sets to display images without correlating scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.

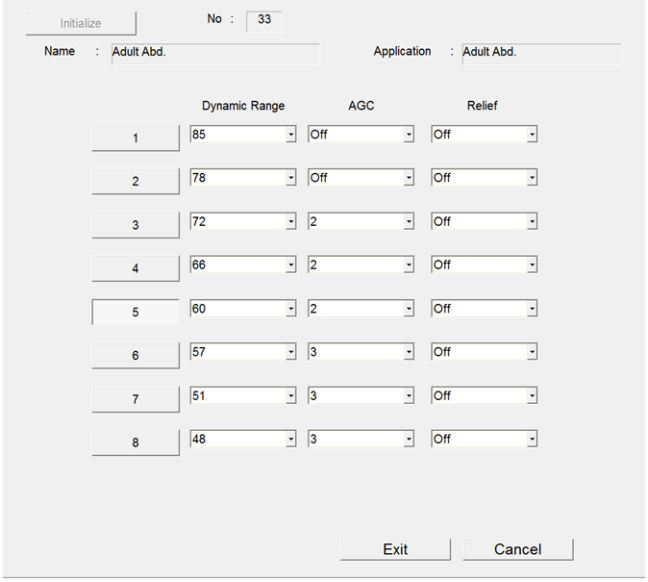
Item	Options	Description
Graymap	Linear A B C D	Sets the correction curve that matches the brightness characteristics of the display.

AIP Level (B), AIP Level (FmT), AIP Level (WbT) Settings



Item	Options	Description
No.	1 to 6	Sets the default No.
Edge Sens	1 to 8	Sets the sensitivity level for detecting boundaries that have different properties.
Resolution	1 to 8	Sets whether to emphasize spatial resolution or speckle noise removal. Raise the level to improve spatial resolution.

IP Select (M) Settings



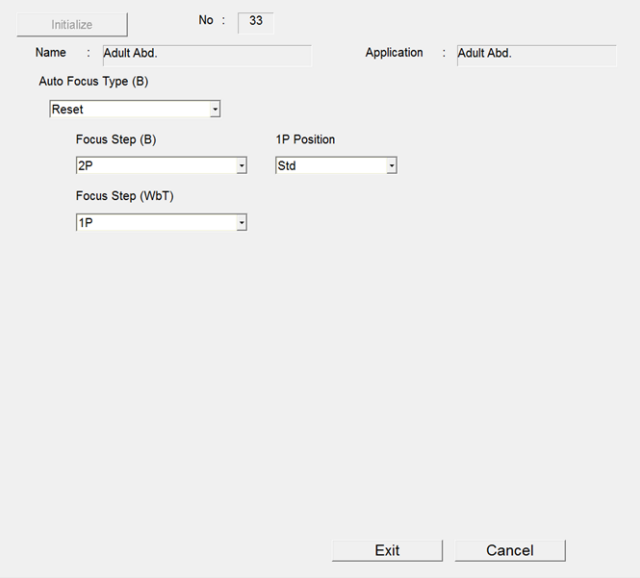
Item	Options	Description
No.	1 to 8	Sets the default No.
Dynamic Range	36 to 96	Sets the Dynamic range.
AGC	Off	Sets the tissue boundary emphasis to Off
	1 to 15	Sets the level of tissue boundary emphasis.
Relief	Off Low Med High	Sets the edge enhancement of M mode image.

9.6.17 Focus

Makes Focus-related settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Focus] from the Tree View.
   Focus is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Focus Settings

Item	Options	Description
Auto Focus Type (B)	Unchanged	Specifies the setting that inherits the position of focal points when auto-focus is enabled, even if the display range is changed.
	Reset	In auto-focus, this sets the position of focal points to return to the auto position when the range is changed.
Focus Step (B)	1P	Sets the focus near the center of the image in just 1 step.
	2P	Sets 2 focal points evenly distributed across the entire image.
	2P@	Sets 1 fixed focal point at the top of the image and 1 movable point at the center.
	3P	Sets 3 focal points on the image.
	Manual	Sets focal points manually.
1P Position	Near	Sets the focus position of Auto 1P to a proximal position.
	Std	Sets the focus position of Auto 1P to an intermediate position.
	Far	Sets the focus position of Auto 1P to a distal position.

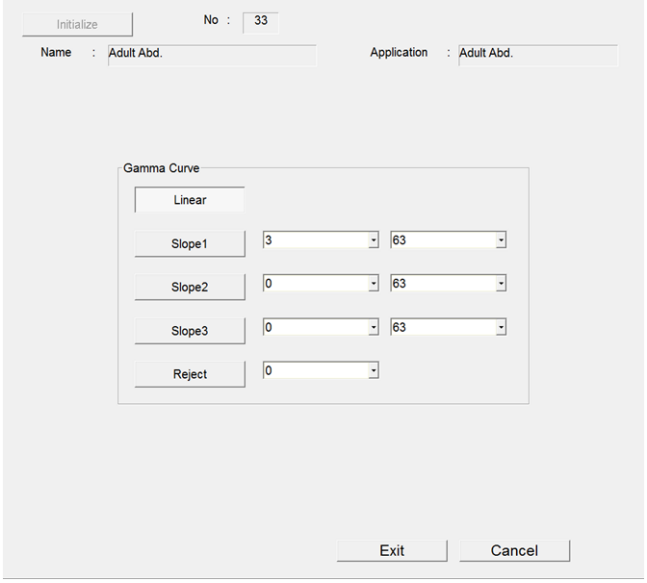
Item	Options	Description
Focus Step (WbT)	1P	Sets the focus near the center of the image in just 1 step.
	2P	Sets 2 focal points evenly distributed across the entire image.
	2P@	Sets 1 fixed focal point at the top of the image and 1 movable point at the center.
	3P	Sets 3 focal points on the image.
	Manual	Sets focal points manually.

9.6.18 Post Processing

Makes settings for Post Processing..

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Post Processing] from the Tree View.
   Gamma Curve is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Post Processing Settings

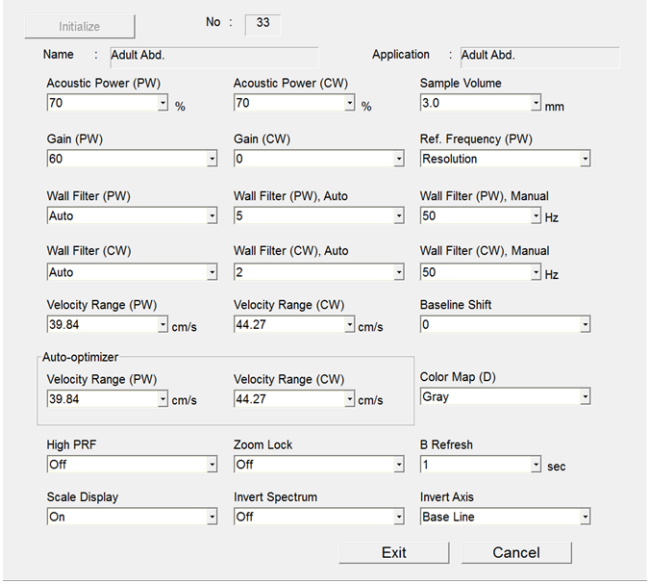
Item	Options	Description
Gamma Curve	Linear	Sets the characteristics of brightness displayed according to the echo intensity of the B mode image *8.3.8 Function menus: Other* on page 169
	Slope1 (0 to 63)	
	Slope2 (0 to 63)	
	Slope3 (0 to 63)	
	Reject (0 to 63)	

9.6.19 Doppler1

Makes Doppler mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Doppler1] from the Tree View.
   Doppler1 is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Doppler1 Settings

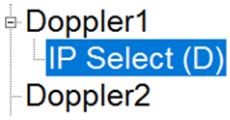
Item	Options	Description
Acoustic Power (PW)	0 to 100	Sets the transmission output in PW mode.
Acoustic Power (CW)	0 to 100	Sets the transmission output in CW mode.
Sample Volume	0.5 to 20.0	Sets the size of the sample volume in the PW mode in mm. The number of steps varies depending on the size.
Gain (PW)	0 to 127	Sets the gain value in PW mode.
Gain (CW)	0 to 127	Sets the gain value in CW mode.
Ref. Frequency (PW)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the PW mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the PW mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the PW mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the PW mode.
Wall Filter (PW)	Auto	Sets a filter value corresponding to the velocity range.
	Manual	Sets to control with a fixed filter value.
Wall Filter (PW), Auto	1 to 12	Sets the level for automatically setting a filter value when Wall Filter (PW) is set to "Auto".
Wall Filter (PW), Manual	50 100 200 400 800 1600	Sets the filter value when Wall Filter (PW) is set to "Manual"
Wall Filter (CW)	Auto	Sets a filter value corresponding to the velocity range.
	Manual	Sets to control with a fixed filter value.
Wall Filter (CW), Auto	1 to 12	Sets the level for automatically setting a filter value when Wall Filter (CW) is set to "Auto".
Wall Filter (CW), Manual	50 100 200 400 800 1600	Sets the filter value when Wall Filter (CW) is set to "Manual"
Velocity Range (PW)	6.23 to 398.44	Sets the velocity range (cm/s) of the PW mode.
Velocity Range (CW)	24.90 to 796.88	Sets the velocity range (cm/s) of the CW mode.
Baseline Shift	-16 to 16	Sets the position of the baseline for D mode images.

Item	Options	Description
Auto-optimizer Velocity Range (PW)	6.23 to 398.44	Sets the PW mode target velocity range (cm/s) for the Auto-Optimizer
Auto-optimizer Velocity Range (CW)	24.90 to 796.88	Sets the CW mode target velocity range (cm/s) for the Auto-Optimizer
Color Map (D)	Gray	Sets the display to add no coloration to images.
	A	Sets the image display adding from blue to orange.
	B	Sets the image display with blue color.
	C	Sets the image display with blue color lighter than B.
	D	Sets the image display with orange color.
	E	Sets to brown brightness characteristics.
	F	Sets brown brightness characteristics that are lighter than E..
	G	Sets to blue and yellow brightness characteristics.
High PRF	Off On	Sets the High PRF function to operate when the velocity range is raised.
Zoom Lock	Off	Zooms an image regardless of the display position of the sample volume.
	On	Zooms an image with the display position of the sample volume as the center.
B Refresh	1 2 4 6 8	Sets the renewal interval of the B mode image at times such as when B+Color/M+Color are displayed at the same time.
Scale Display	Off On	Sets to display the flow velocity value on the Doppler scale.
Invert Spectrum	Off	Specifies the setting to display the blood flow approaching the probe in the upward direction in D mode.
	On	Specifies the setting to display the blood flow approaching the probe in the downward direction in D mode.
Invert Axis	Base Line	Sets the standard for spectrum inversion to the baseline.
	Center	Sets the standard for spectrum inversion to the center of the image.

(1) IP Select (D) Settings

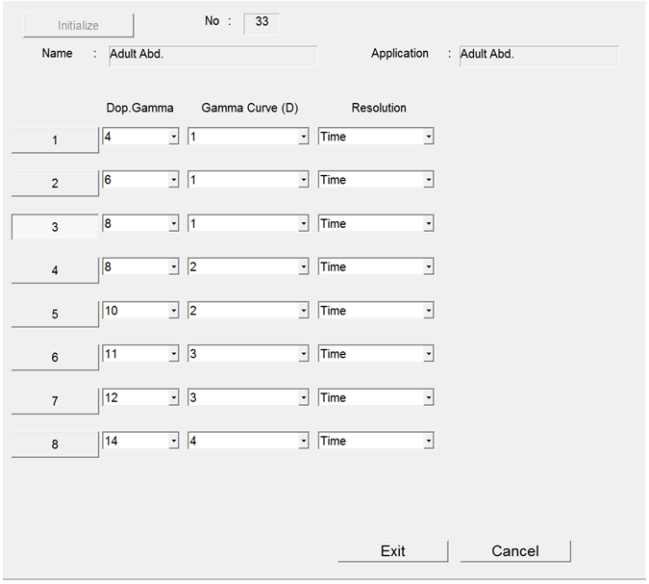
Procedure

1. Select the [+] mark displayed in front of Doppler1 in the Tree view.
   IP Select (D) is displayed.



2. Select [IP Select (D)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (D) Settings



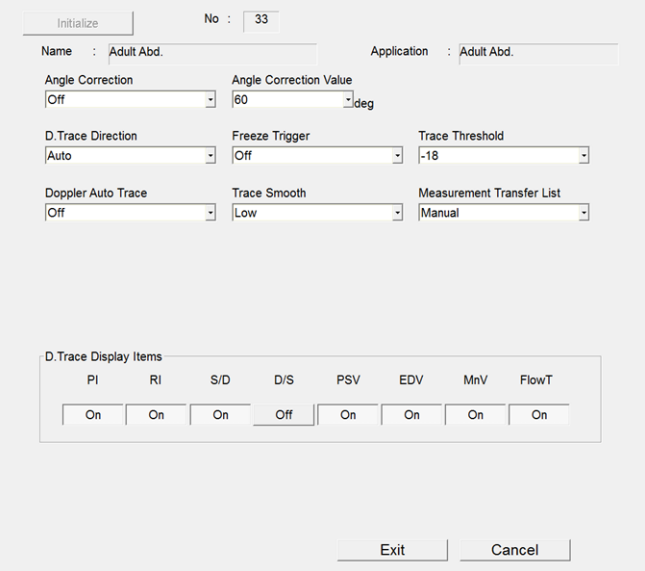
Item	Options	Description
No.	1 to 8	Sets the default No.
Dop.Gamma	1 to 16	Sets the Doppler waveform contrast and the level of gamma adjustment.
Gamma Curve (D)	Off	Specifies the setting that does not suppress weak signals.
	1 to 7	Sets the weak signal level to be suppressed in order to display a clear Doppler pattern.
Resolution	Time	Sets the direction for improving the Doppler spectrum resolution to the time direction.
	Frequency	Sets frequency direction as the direction to improve the resolution of a Doppler spectrum.

9.6.20 Doppler2

Makes Doppler mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Doppler2] from the Tree View.
   Doppler2 is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Doppler2 Settings

Item	Options	Description
Angle Correction	Off	Turns off the angle correction value display when the D cursor is displayed.
	On	Turns on the angle correction value display when the D cursor is displayed.
Angle Correction Value	-80 to 80	Sets the default value for angle correction.

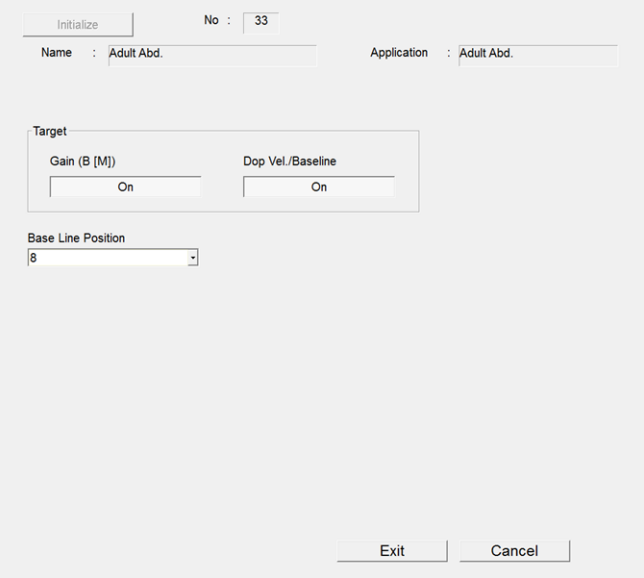
Item	Options	Description
D. Trace Direction	Toward	Sets the trace range of Real Time Doppler Auto Trace above the baseline.
	Away	Sets the trace range of Real Time Doppler Auto Trace below the baseline.
	Both	Sets the trace range of Real Time Doppler Auto Trace above and below the baseline.
	Auto	Set the trace range of Real Time Doppler Auto Trace to be automatically switched. 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.
Freeze Trigger	Off On	Displays the trace line and measurement result when the image is frozen.
Trace Threshold	-22 to 0	Sets the trace domain to the Doppler signal
Doppler Auto Trace	Off	Turns off the startup of automatic trace when displaying images in the D mode.
	On	Turns on the startup of automatic trace when displaying images in the D mode.
Trace Smooth	Low	Sets the smoothness level of the trace line to Low.
	High	Sets the smoothness level of the trace line to High.
Measurement Transfer List	Auto	Sets to display the menu for transferring measurements during the freeze mode. There are other conditions for displaying the menu. For details, refer to the separate "Measurements" manual.
	Manual	Sets to not display the menu for transferring measurements during the freeze mode.
D. Trace Display Items	Off On	Sets the display of PI, RI, S/D, D/S, PSV, EDV, MnV,FlowT.

9.6.21 Auto-optimizer

Makes settings for Auto-optimizer.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Auto-optimizer] from the Tree View.
   Auto-optimizer is displayed.



5. Change item settings.

Table4: Target

Item	Options	Description
Gain (B [M])	Off	Disable Auto-optimizer in B mode.
	On	Sets to adjust the B (M), including TGC and lateral gain, automatically when the Auto-optimizer is turned on.
Dop Vel./ Baseline	Off	Disable Auto-optimizer in Doppler mode.
	On	Sets so that Doppler velocity range and Doppler baseline are adjusted automatically when the Auto-optimizer is turned on.
Base Line Position	Unchanged	Sets so that the Doppler baseline is not adjusted automatically when the Auto-optimizer is turned on, if Dop Vel./Baseline is set to "On".
	0 to 16	Sets the shift position of the Doppler baseline when Auto-optimizer is turned on and Dop Vel./Baseline is set to "On".

To return to the position of the factory default

Select [Initialize].

6. Select the [Exit].

This finalizes the changed settings and redisplays the preset setting selection list.

Select [Cancel] to discard the changes and return to the preset setting selection list.

7. Set target values for the items to optimize.

Item name	Configurable Menus and Presets
Gain (B [M])	Brightness Level *8.3.1 Function menus: B* on page 151
	Brightness Level *9.6.16 Image-B, M2* on page 241
	Auto-optimizer Velocity Range (PW) *Doppler1 Settings* on page 250

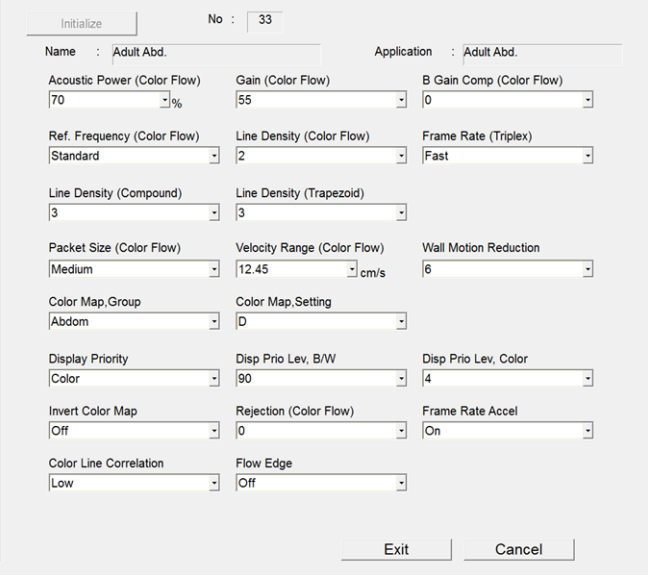
Item name	Configurable Menus and Presets
Dop Vel./Baseline	Base Line Position *9.6.21 Auto-optimizer* on page 254

9.6.22 Color Flow

Makes Color Flow mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Color Flow] from the Tree View.
   Color Flow is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Color Flow Settings

Item	Options	Description
Acoustic Power (Color Flow)	0 to 100	Sets the transmission output in Color Flow mode.
Gain (Color Flow)	0 to 127	Sets the gain value in Color Flow mode.

Item	Options	Description
B Gain Comp (Color Flow)	-30 to 30	Sets the correction level for the decrease in brightness caused by the power restriction based on the difference in B Gain between Color Flow On and Color Flow Off.
Ref. Frequency (Color Flow)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the Color Flow mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the Color Flow mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the Color Flow mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the Color Flow mode.
Line Density (Color Flow)	-4 to 4	Sets the scan line density (CF) of CF mode images. Line density increases when the level goes up, and decreases when the level goes down.
Frame Rate (Triplex)	Off Medium1 Medium2 Fast	Sets the combination of the number of scanning lines of Color Flow in the B+Color/D mode and simultaneous mode, and the number of scanning lines in the B mode. Frame-rate increases in the order of "Off", "Medium1", "Medium2" and "Fast".
Line Density (Compound)	-4 to 4	Sets the line density (CF) to apply when Compound (CF Mode) starts.
Line Density (Trapezoid)	-4 to 4	Sets the line density (CF) to apply when Trapezoidal Scanning (CF Mode) starts.
Packet Size (Color Flow)	Low	Sets the number of transmissions to Low in the Color Flow mode.
	Medium	Sets the number of transmissions to Med in the Color Flow mode.
	High	Sets the number of transmissions to High in the Color Flow mode.
Velocity Range (Color Flow)	0.63 to 227.68	Sets the velocity range (cm/s) of the Color Flow mode.
Wall Motion Reduction	Off	Turns off the removal of clutter signals (wall motion noise).
	1 to 15	Sets the level for removing clutter signal (wall motion noise). The higher the value, the higher the noise removal level.
Color Map, Group	Abdom Cardio Vascular Power eFlow Directional Power Directional eFlow User	Configures settings for the Color Map group, such as velocity and dispersion, power, etc., in the Color Flow mode.

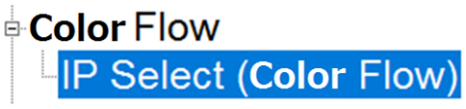
Item	Options	Description
Color Map, Setting	A B C D E	Set up the Color Map.
Display Priority	Color	Sets to color display the area where a black-and-white image and a color flow velocity display overlap.
	Both	Displays both black-and-white and color images.
	Color (TDI)	Sets to color display the area where a black-and-white image and a color flow velocity display overlap in the TDI Flow mode.
	Both (TDI)	Cuts off color information and displays black-and-white images preferentially if the low flow velocity components of the color information are large in the TDI Flow mode.
Disp Prio Lev, B/W	0 to 127	Sets the threshold for the black-and-white information display.
Disp Prio Lev, Color	1 to 127	Sets the threshold for the color information display.
Invert Color Map	Off	Sets to display the blood flow approaching the probe in reds, and that moving away in blues.
	On	Sets to display the blood flow approaching the probe in blues, and that moving away in reds.
Rejection (Color Flow)	0 to 31	Sets the level of low flow velocity components to be cut from the color information.
Frame Rate Accel	Off	Sets not to interpolate the color display between frames.
	On	Sets to interpolate the color display between frames to display a smooth color image.
Color Line Correlation	Off	Sets to display using data from color reception lines.
	Low	Sets to display the image adding a line between color reception lines. This function enables smoother image display.
	High	Sets to display images adding multiple lines between color reception lines. This function enables smoother image display than [Low].
Flow Edge	Off	Turns "Off" the processing of color pixel information.
	On	Turns on the processing of color pixel information to set the image display so that color flow does not extend beyond the tissues. NOTE: Sufficient sensitivity may not be obtained in some cases, such as with deep blood vessels.

(1) IP Select (Color Flow) Settings

Procedure

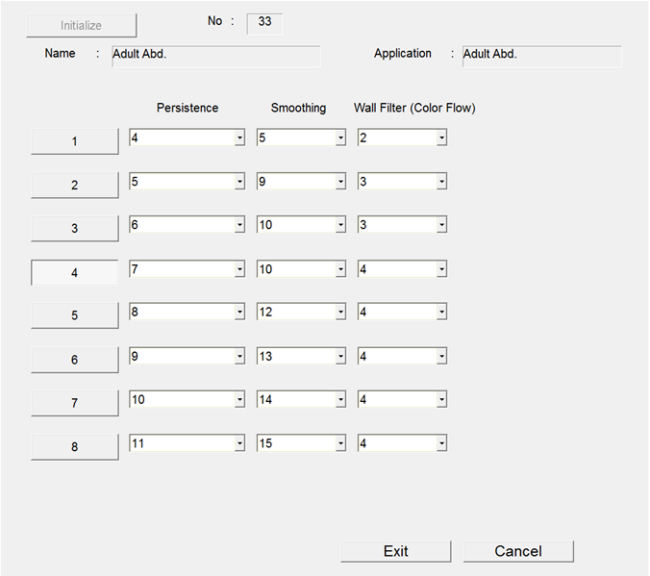
1. Select the [+] mark in front of Color Flow in the Tree view.

IP Select (Color Flow) is displayed.



2. Select [IP Select (Color Flow)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (Color Flow) Settings



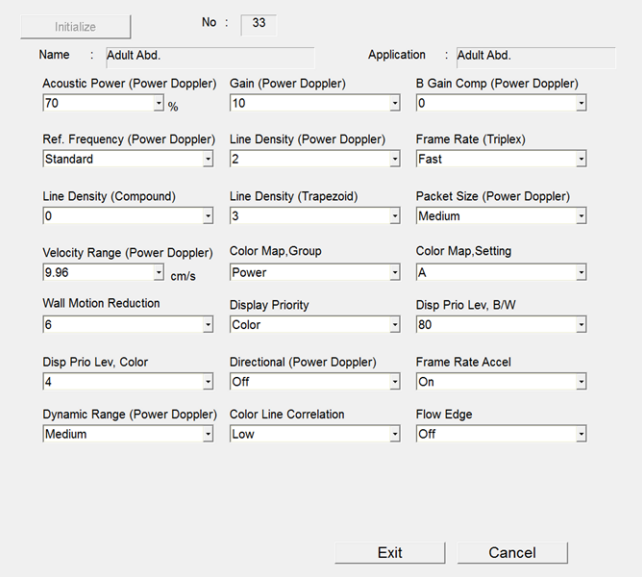
Item	Options	Description
No.	1 to 8	Sets the default No.
Persistence	Off	Sets the correlation between adjacent frames to "Off".
	1 to 15	Sets the frame correlation rate.
Smoothing	Off	Turns off the correlation between scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.
Wall Filter (Color Flow)	1 to 6	Sets the filter for removing wall motion.

9.6.23 Power Doppler

Makes Power Doppler mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Power Doppler] from the Tree View.
   Power Doppler is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Power Doppler Settings

Item	Options	Description
Acoustic Power (Power Doppler)	0 to 100	Sets the transmission output in the Power Doppler mode (in 1% steps).
Gain (Power Doppler)	-63 to 63	Sets the gain value of the Power Doppler mode in 1 dB steps.
B Gain Comp (Power Doppler)	-30 to 30	Sets the correction level for the decrease in brightness caused by the power restriction based on the difference in B Gain between Power Flow On and Power Flow Off.

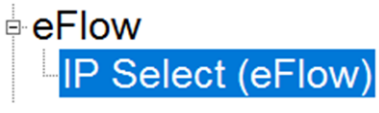
Item	Options	Description
Ref. Frequency (Power Doppler)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the Power Doppler mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the Power Doppler mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the Power Doppler mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the Power Doppler mode.
Line Density (Power Doppler)	-4 to 4	Sets the scan line density (PD) of PD mode images. Line density increases when the level goes up, and decreases when the level goes down.
Frame Rate (Triplex)	Off Medium1 Medium2 Fast	Sets the combination of the number of scanning lines of Power Doppler in the B+Color/D mode and simultaneous mode, and the number of scanning lines in the B mode. Frame-rate increases in the order of "Off", "Medium1", "Medium2" and "Fast".
Line Density (Compound)	-4 to 4	Sets the line density to be applied when Compound starts (in PD mode).
Line Density (Trapezoid)	-4 to 4	Sets the line density to be applied when Trapezoidal Scanning starts (in PD mode).
Packet Size (Power Doppler)	Low	Sets the number of transmissions to Low in the Power Doppler mode.
	Medium	Sets the number of transmissions to Med in the Power Doppler mode.
	High	Sets the number of transmissions to High in the Power Doppler mode.
Velocity Range (Power Doppler)	0.63 to 227.68	Sets the aliased velocity range (cm/s) of the Power Doppler mode.
Color Map, Group	Abdom Cardio Vascular Power eFlow Directional Power Directional eFlow User	Configures settings for the Color Map group, such as velocity and dispersion, power, etc., in the Power Doppler mode.
Color Map, Setting	A B C D E	Set up the Color Map.
Wall Motion Reduction	Off	Turns off the removal of clutter signals (wall motion noise).
	1 to 15	Sets the level for removing clutter signal (wall motion noise). The higher the value, the higher the noise removal level.

Item	Options	Description
Display Priority	Color	Sets to color display the area where a black-and-white image and a color flow velocity display overlap.
	Both	Displays both black-and-white and color images.
	Color (TDI)	Sets to color display the area where a black-and-white image and a color flow velocity display overlap in the TDI Power Doppler mode.
	Both (TDI)	Cuts off color information and displays black-and-white images preferentially if the low flow velocity components of the color information are large in the TDI Power Doppler mode.
Disp Prio Lev, B/W	0 to 127	Sets the threshold for the black-and-white information display.
Disp Prio Lev, Color	1 to 127	Sets the threshold for the color information display.
Directional(Power Doppler)	On, Off	Sets the Directional display when started in PD mode.
Frame Rate Accel	Off	Sets not to interpolate the color display between frames.
	On	Sets to interpolate the color display between frames to display a smooth color image.
Dynamic Range (Power Doppler)	Low	Sets the dynamic range for Power Doppler mode to Low.
	Medium	Sets the dynamic range for Power Doppler mode to Med.
	High	Sets the dynamic range for Power Doppler mode to High.
Color Line Correlation	Off	Sets to display using data from color reception lines.
	Low	Sets to display the image adding a line between color reception lines. This function enables smoother image display.
	High	Sets to display images adding multiple lines between color reception lines. This function enables smoother image display than [Low].
Flow Edge	Off	Turns "Off" the processing of color pixel information.
	On	Turns on the processing of color pixel information to set the image display so that color flow does not extend beyond the tissues. NOTE: Sufficient sensitivity may not be obtained in some cases, such as with deep blood vessels.

(1) IP Select (Power Doppler) Settings

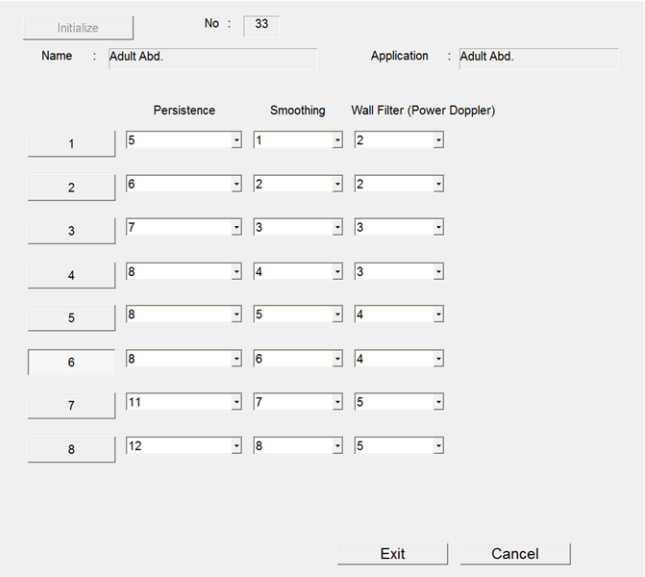
Procedure

1. Select the [+] mark in front of Power Doppler in the Tree view.
   IP Select (Power Doppler) is displayed.



2. Select [IP Select (Power Doppler)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (Power Doppler) Settings



Item	Options	Description
No.	1 to 8	Sets the default No.
Persistence	Off	Sets the correlation between adjacent frames to "Off".
	1 to 15	Sets the frame correlation rate.
Smoothing	Off	Turns "Off" the correlation between scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.
Wall Filter (Power Doppler)	1 to 6	Sets the filter for removing wall motion.

9.6.24 eFlow

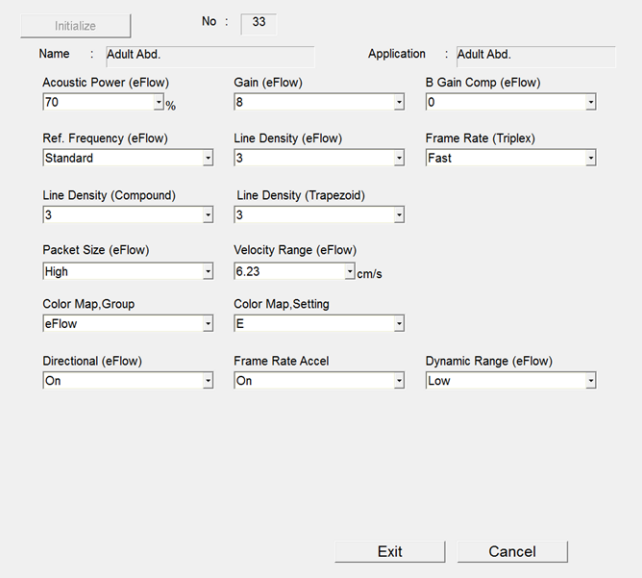
Makes eFlow mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.

The Preset Set-Up Menu for the selected preset is displayed.

4. Select [eFlow] from the Tree View.
   eFlow is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

eFlow Settings

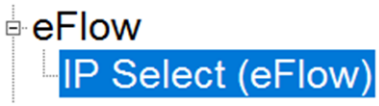
Item	Options	Description
Acoustic Power (eFlow)	0 to 100	Sets the transmission output in eFlow mode.
Gain (eFlow)	-63 to 63	Sets the gain value in eFlow mode.
B Gain Comp (eFlow)	-30 to 30	Sets the correction level for the decrease in brightness caused by the power restriction based on the difference in B Gain between eFlow On and eFlow Off.
Ref. Frequency (eFlow)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the eFlow mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the eFlow mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the eFlow mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the eFlow mode.
Line Density (eFlow)	-4 to 4	Sets the scan line density (eFlow) of eFlow mode images. Line density increases when the level goes up, and decreases when the level goes down.

Item	Options	Description
Frame Rate (Triplex)	Off Medium1 Medium2 Fast	Sets the combination of the number of scanning lines of eFlow in the B+Color/D mode and simultaneous mode, and the number of scanning lines in the B mode. Frame-rate increases in the order of "Off", "Medium1", "Medium2" and "Fast".
Line Density (Compound)	-4 to 4	Sets the line density to be applied when Compound starts (in eFlow mode).
Line Density (Trapezoid)	-4 to 4	Sets the line density to be applied when Trapezoidal Scanning (eFlow mode) starts.
Packet Size (eFlow)	Low	Sets the number of transmissions to Low in the eFlow mode.
	Medium	Sets the number of transmissions to Med in the eFlow mode.
	High	Sets the number of transmissions to High in the eFlow mode.
Velocity Range (eFlow)	0.63 to 227.68	Sets the aliased velocity range (cm/s) of the eFlow mode.
Color Map, Group	Abdom Cardio Vascular Power eFlow Directional Power Directional eFlow User	Configures settings for the Color Map group, such as velocity and dispersion, power, etc., in the eFlow mode.
Color Map, Setting	A B C D E	Set up the Color Map.
Directional (eFlow)	Off On	Sets the Directional display when started in eFlow mode.
Frame Rate Accel	Off	Sets not to interpolate the color display between frames.
	On	Sets to interpolate the color display between frames to display a smooth color image.
Dynamic Range (eFlow)	Low	Sets the dynamic range for eFlow mode to Low.
	Medium	Sets the dynamic range for eFlow mode to Med.
	High	Sets the dynamic range for eFlow mode to High.

(1) IP Select (eFlow) Settings

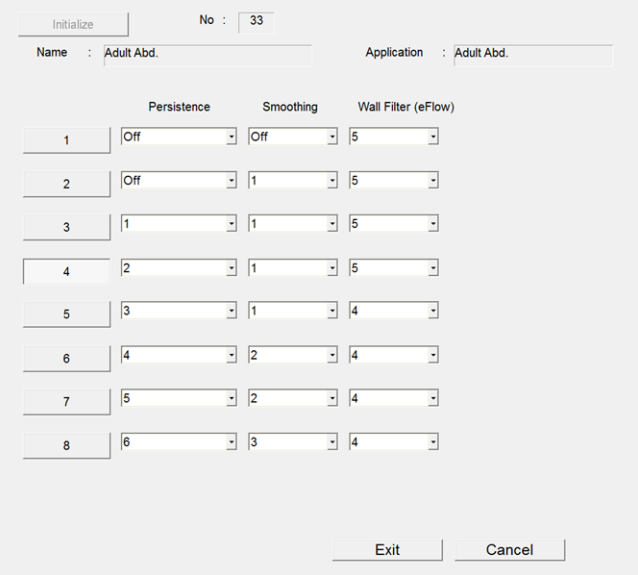
Procedure

1. Select the [+] mark in front of eFlow in the Tree view.
   IP Select (eFlow) is displayed.



2. Select [IP Select (eFlow)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (eFlow) Settings



Item	Options	Description
No.	1 to 8	Sets the default No.
Persistence	Off	Sets the correlation between adjacent frames to Off.
	1 to 15	Sets the frame correlation rate.
Smoothing	Off	Turns "Off" the correlation between scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.
Wall Filter (eFlow)	1 to 8	Sets the filter for removing wall motion.

9.6.25 Tissue Doppler

Makes Tissue Doppler mode settings.

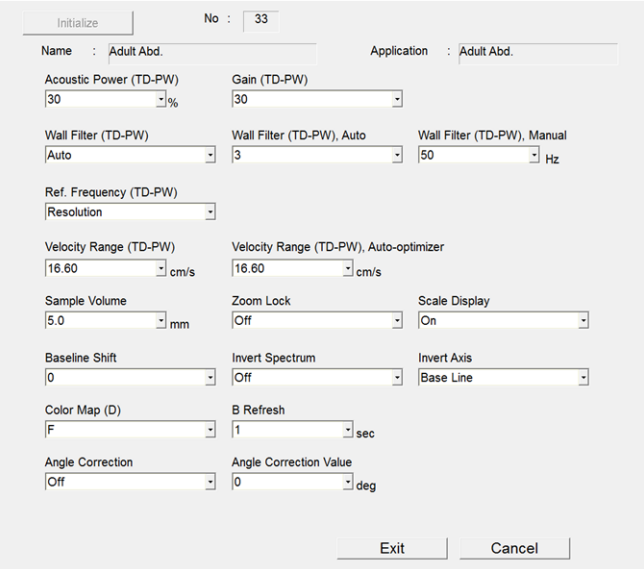
Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].

The preset setting selection list is displayed.

3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.

4. Select [Tissue Doppler] from the Tree View.
   Tissue Doppler is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Tissue Doppler Settings

Item	Options	Description
Acoustic Power (TD-PW)	0 to 100	Sets the transmission output in TDI PW mode.
Gain (TD-PW)	0 to 127	Sets the gain value in TDI PW mode.
Wall Filter (TD-PW)	Auto	Sets a filter value corresponding to the velocity range.
	Manual	Sets to control with a fixed filter value.
Wall Filter (TD-PW), Auto	1 to 12	Sets the level for automatically setting a filter value when Wall Filter (TD-PW) is set to "Auto".
Wall Filter (TD-PW), Manual	50 100 200 400 800 1600	Sets the filter value when "Wall Filter (TD-PW)" is set to Manual.

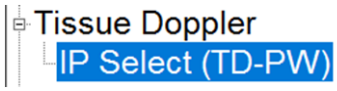
Item	Options	Description
Ref. Frequency (TD-PW)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the TDI PW mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the TDI PW mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the TDI PW mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the TDI PW mode.
Velocity Range (TD-PW)	6.23 to 398.44	Sets the velocity range (cm/s) of the TDI PW mode.
Velocity Range (TD-PW), Auto-optimizer	6.23 to 398.44	Sets the target velocity range (in cm/s) of the TDI PWmode when Auto-Optimizer is On.
Sample Volume	0.5 to 20.0	Sets the size of the sample volume in the TDI PW mode in mm. The number of steps varies depending on the size.
Zoom Lock	Off	Sets to Zoom regardless of the display position of the sample volume.
	On	Specifies the setting to Zoom in on an image with the display position of the sample volume as the center.
Scale Display	Off	Sets to hide the flow velocity value on the Doppler scale.
	On	Sets to display the flow velocity value on the Doppler scale.
Baseline Shift	-16 to 16	Sets the position of the baseline for TDI PW mode images.
Invert Spectrum	Off	Specifies the setting to display the blood flow approaching the probe in the upward direction in TDI PW mode.
	On	Specifies the setting to display the blood flow approaching the probe in the downward direction in TDI PW mode.
Invert Axis	Base Line	Sets the standard for spectrum inversion to the baseline.
	Center	Sets the standard for spectrum inversion to the center of the image.
Color Map(D)	Gray	Sets the display to add no coloration to images.
	A	Sets the image display adding from blue to orange.
	B	Sets the image display with blue color.
	C	Sets the image display with blue color lighter than B.
	D	Sets the image display with orange color.
	E	Sets to brown brightness characteristics.
	F	Sets brown brightness characteristics that are lighter than E.
	G	Sets to blue and yellow brightness characteristics.
B Refresh	1 2 4 6 8	Sets the renewal interval of the B mode image at times such as when B+Color/M+Color are displayed at the same time.

Item	Options	Description
Angle Correction	Off	Turns off the angle correction value display when the D cursor is displayed.
	On	Turns on the angle correction value display when the D cursor is displayed.
Angle Correction Value	-80 to 80	Sets the default value of angle correction in TDI PW mode.

(1) IP Select (TD-PW) Settings

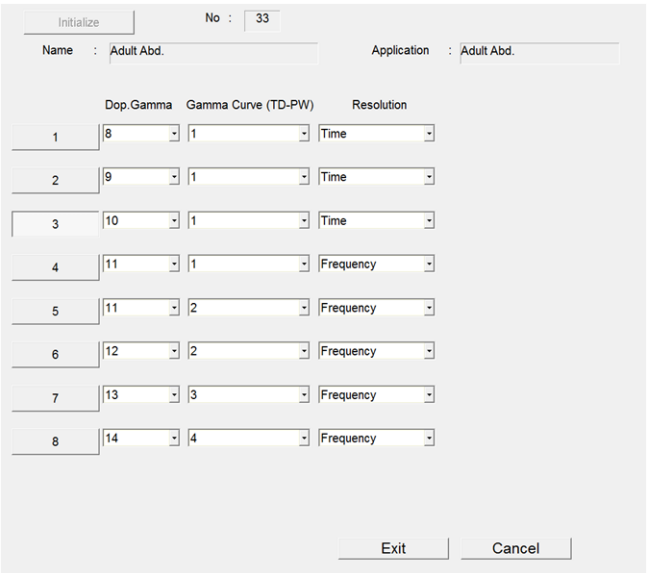
Procedure

1. Select the [+] mark in front of Tissue Doppler in the Tree view.
   IP Select (TD-PW) is displayed.



2. Select [IP Select (TD-PW)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (TD-PW) Settings



Item	Options	Description
No.	1 to 8	Sets the default No.
Dop.Gamma	1 to 16	Sets the Doppler waveform contrast and the level of gamma adjustment.

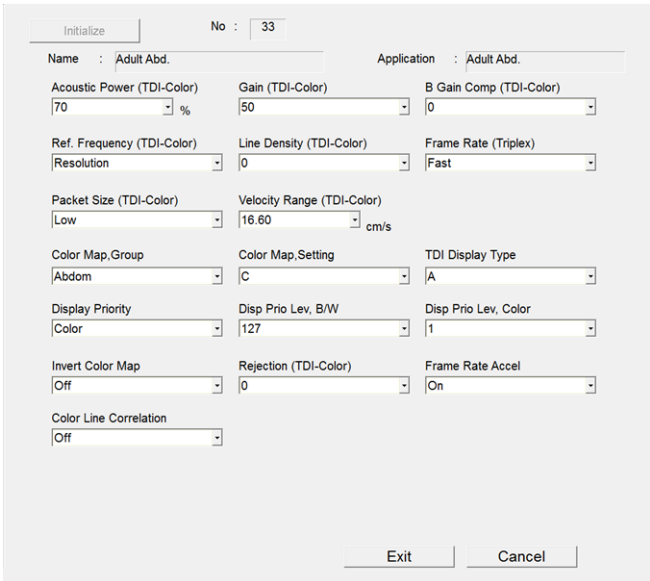
Item	Options	Description
Gamma Curve (TD-PW)	Off	Specifies the setting that does not suppress weak signals.
	1 to 7	Sets the weak signals to be suppressed in order to display a clear Doppler pattern.
Resolution	Time Frequency	Sets the direction of resolution to be improved for a Doppler spectrum.

9.6.26 TDI-Color

Makes TDI Color mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [TDI-Color] from the Tree View.
   The TDI-Color screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

TDI-Color Settings

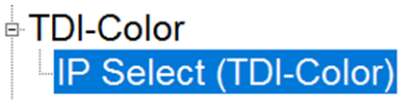
Item	Options	Description
Acoustic Power (TDI-Color)	0 to 100	Sets the transmission output in TDI Color mode.
Gain (TDI-Color)	0 to 127	Sets the gain value in TDI Color mode.
B Gain Comp (TDI-Color)	-30 to 30	Sets the correction level for the decrease in brightness caused by the power restriction based on the difference in B Gain between TDI Color Flow On and TDI Color Flow Off.
Ref. Frequency (TDI-Color)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the TDI Color mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the TDI Color mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the TDI Color mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the TDI Color mode.
Line Density (TDI-Color)	-4 to 4	Sets the scan line density during TDI-Color. Line density increases when the level goes up, and decreases when the level goes down.
Frame Rate (Triplex)	Off Medium1 Medium2 Fast	Sets the combination of the number of scanning lines of TDI Color in the B+Color/D mode and simultaneous mode, and the number of scanning lines in the B mode. Frame-rate increases in the order of "Off", "Medium1", "Medium2" and "Fast".
Packet Size (TDI-Color)	Low	Sets the number of transmissions to Low in the TDI Color mode.
	Medium	Sets the number of transmissions to Med in the TDI Color mode.
	High	Sets the number of transmissions to High in the TDI Color mode.
Velocity Range (TDI-Color)	0.63 to 227.68	Sets the velocity range (cm/s) of the TDI Color mode.
Color Map, Group	Abdom Cardio Vascular Power eFlow Directional Power Directional eFlow User	Configures settings for the Color Map group, such as velocity and dispersion, power, etc., in the TDI Color mode.
Color Map, Setting	A B C D E	Set up the Color Map.

Item	Options	Description
TDI Display Type	A	Sets TDI as the coding method in the TDI Color mode.
	B	Sets Normal as the coding method in the TDI Color mode.
Display Priority	Color	Sets to color display the area where a black-and-white image and a color flow velocity display overlap.
	Both	Displays both black-and-white and color images.
	Color (TDI)	Sets to color display the area where a black-and-white image and a color flow velocity display overlap in the TDI Color mode.
	Both (TDI)	Cuts off color information and displays black-and-white images preferentially if the low flow velocity components of the color information are large in the TDI Color mode.
Disp Prio Lev, B/W	0 to 127	Sets the threshold for the black-and-white information display.
Disp Prio Lev, Color	1 to 127	Sets the threshold for the color information display.
Invert Color Map	Off	Sets to display the blood flow approaching the probe in reds, and that moving away in blues.
	On	Sets to display the blood flow approaching the probe in blues, and that moving away in reds.
Rejection (TDI-Color)	0 to 31	Sets the level of low flow velocity components to be cut from the color information.
Frame Rate Accel	Off	Sets not to interpolate the color display between frames.
	On	Sets to interpolate the color display between frames to display a smooth color image.
Color Line Correlation	Off	Sets to display using data from color reception lines.
	Low	Sets to display the image adding a line between color reception lines. This function enables smoother image display.
	High	Sets to display images adding multiple lines between color reception lines. This function enables smoother image display than Low.

(1) IP Select (TDI-Color) Settings

Procedure

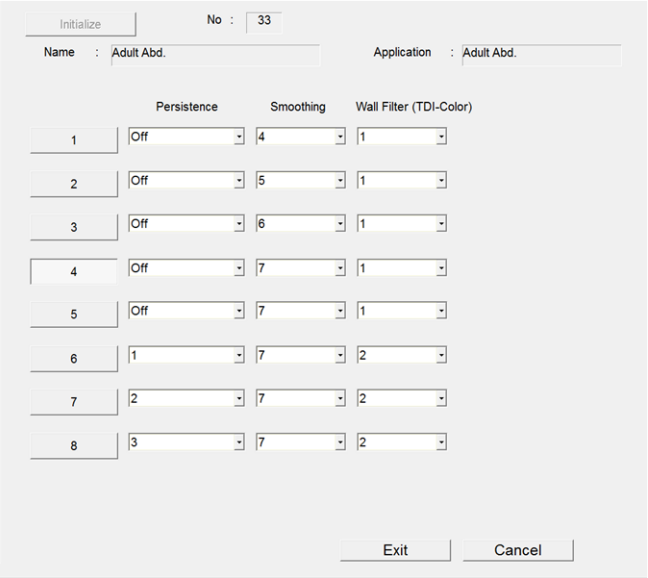
1. Select the [+] mark displayed in front of TDI-Color in the Tree view.
   IP Select (TDI-Color) is displayed.



2. Select [IP Select (TDI-Color)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (TDI-Color) Settings



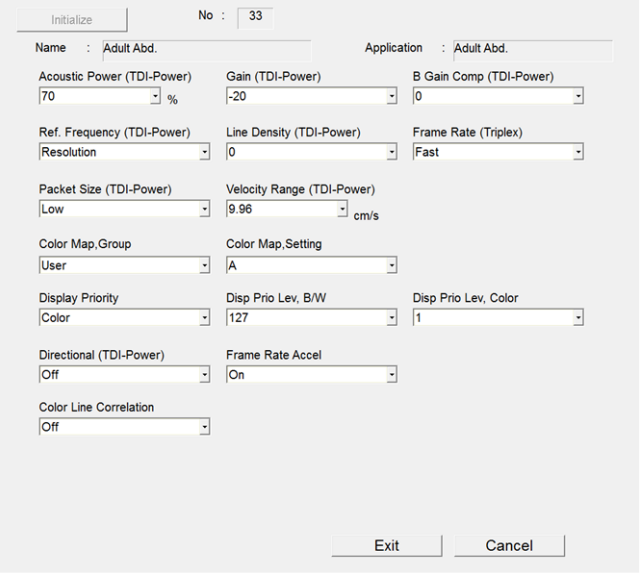
Item	Options	Description
No.	1 to 8	Sets the default No.
Persistence	Off	Sets the correlation between adjacent frames to "Off".
	1 to 15	Sets the frame correlation rate.
Smoothing	Off	Turns "Off" the correlation between scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.
Wall Filter (TDI-Color)	1, 2	Sets the level for cutting high velocity components to remove blood flow information.

9.6.27 TDI Power

Makes TDI Power Doppler mode settings.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [TDI-Power] from the Tree View.
   The TDI-Power screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

TDI-Power Settings

Item	Options	Description
Acoustic Power (TDI-Power)	0 to 100	Sets the transmission output in TDI Power Doppler mode.
Gain (TDI-Power)	-63 to 63	Sets the gain value in TDI Power Doppler mode.
B Gain Comp (TDI-Power)	-30 to 30	Sets the correction level for the decrease in brightness caused by the power restriction based on the difference in B Gain between TDI Power Flow On and TDI Power Flow Off.
Ref. Frequency (TDI-Power)	Penetration	Sets the reference frequency (transmission frequency) to a low value in the TDI Power Doppler mode.
	Standard	Sets the reference frequency (transmission frequency) to a slightly low value in the TDI Power Doppler mode.
	Resolution	Sets the reference frequency (transmission frequency) to a slightly high value in the TDI Power Doppler mode.
	High	Sets the reference frequency (transmission frequency) to a high value in the TDI Power Doppler mode.
Line Density (TDI-Power)	-4 to 4	Sets the scan line density in the TDI Power Doppler. Line density increases when the level goes up, and decreases when the level goes down.

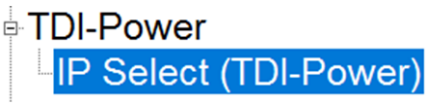
Item	Options	Description
Frame Rate (Triplex)	Off Medium1 Medium2 Fast	Sets the combination of the number of scanning lines of TDI Power Doppler in the B+Color/D mode and simultaneous mode, and the number of scanning lines in the B mode. Frame-rate increases in the order of "Off", "Medium1", "Medium2" and "Fast".
Packet Size (TDI-Power)	Low	Sets the number of transmissions to Low in the TDI Power Doppler mode.
	Medium	Sets the number of transmissions to Med in the TDI Power Doppler mode.
	High	Sets the number of transmissions to High in the TDI Power Doppler mode.
Velocity Range (TDI-Power)	0.63 to 227.68	Sets the aliased velocity range (cm/s) of the TDI Power Doppler mode.
Color Map, Group	Abdom Cardio Vascular Power eFlow Directional Power Directional eFlow User	Configures settings for the Color Map group, such as velocity and dispersion, power, etc., in the TDI Power Doppler mode.
Color Map, Setting	A B C D E	Set up the Color Map.
Display Priority	Color	Sets to color display the area where a black-and-white image and a color flow velocity display overlap.
	Both	Displays both black-and-white and color images.
	Color (TDI)	Sets to color display the area where a black-and-white image and a color flow velocity display overlap in the TDI Power Doppler mode.
	Both (TDI)	Sets to cut color information and display black-and-white images preferentially if the low flow velocity components of the color information are large in the TDI Power Doppler mode.
Disp Prio Lev, B/W	0 to 127	Sets the threshold for the black-and-white information display.
Disp Prio Lev, Color	1 to 127	Sets the threshold for the color information display.
Directional (TDI-Power)	Off On	Sets the Directional display when started in TDI Power Doppler mode.
Frame Rate Accel	Off	Sets not to interpolate the color display between frames.
	On	Sets to interpolate the color display between frames to display a smooth color image.

Item	Options	Description
Color Line Correlation	Off	Sets to display using data from color reception lines.
	Low	Sets to display the image adding a line between color reception lines. This function enables smoother image display.
	High	Sets to display images adding multiple lines between color reception lines. This function enables smoother image display than Low.

(1) IP Select (TDI-Power) Settings

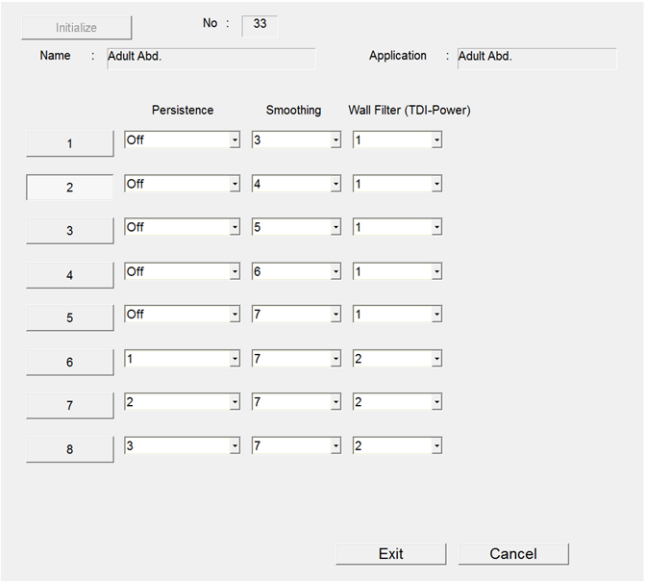
Procedure

1. Select the [+] mark displayed in front of TDI-Power in the Tree view.
   IP Select (TDI-Power) is displayed.



2. Select [IP Select (TDI-Power)].
3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

IP Select (TDI-Power) Settings



Item	Options	Description
No.	1 to 8	Sets the default No.

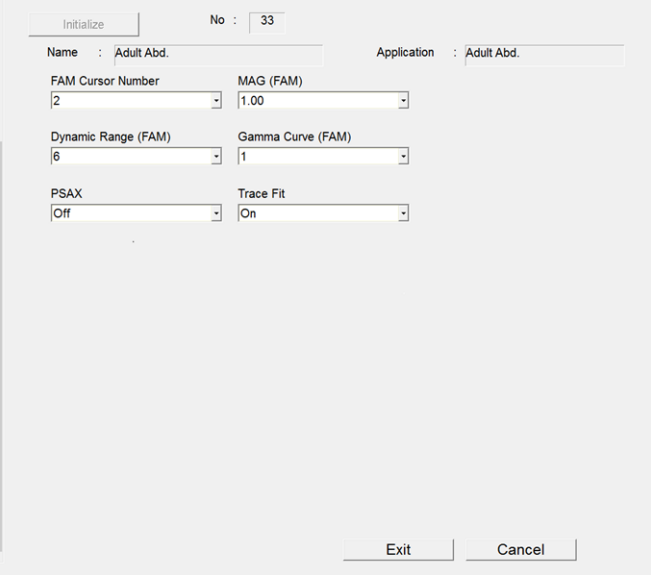
Item	Options	Description
Persistence	Off	Sets the correlation between adjacent frames to "Off".
	1 to 15	Sets the frame correlation rate.
Smoothing	Off	Turns "Off" the correlation between scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.
Wall Filter (TDI-Power)	1, 2	Sets the level for cutting high velocity components to remove blood flow information.

9.6.28 FAM

Makes settings related to the Free Angular M Mode.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [FAM] from the Tree View.
   FAM is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].
6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

FAM Settings

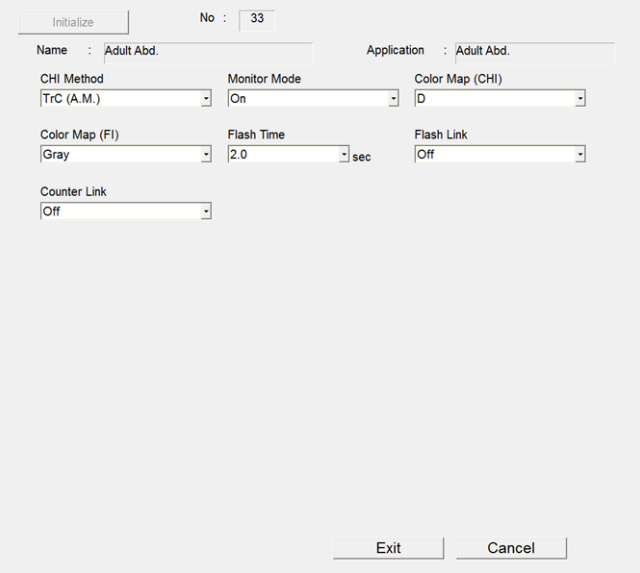
Item	Options	Description
FAM Cursor Number	2 3	Sets the number of FAM cursors to be displayed.
MAG (FAM)	0.50 0.75 1.00 1.50 2.00	Sets the display magnification of M mode images relative to B mode images.
Dynamic Range (FAM)	1 to 16	Sets the contrast of M mode images.
Gamma Curve (FAM)	Off	Turns "Off" changes to brightness characteristics of the M mode image.
	1 to 4	Sets changes to the brightness characteristics of M mode images.
PSAX	Off	Sets the FAM cursors one by one.
	On	Sets to the cursor for short axis cross-section.
Trace Fit	Off	When multiple FAM cursors are displayed at the same time, this sets the setting so that the display magnification of M mode images can be changed using MAG (FAM).
	On	Automatically adjusts MAG (FAM) so any M mode image fits in the display area.

9.6.29 DISP-CHI, FI

Makes settings related to the CHI mode.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [DISP-CHI, FI] from the Tree View.
   The DISP-CHI, FI screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

DISP-CHI, FI Settings

Item	Options	Description
CHI Method	WbC (P.I.) TrC (A.M.)	Sets the method for transmitting and receiving Contrast Harmonic Images.
Monitor Mode	Off	Sets to display only Contrast Harmonic Images.
	On	Sets a Contrast Harmonic Image on one of the two screens while a Fundamental Image is set on the other screen.
Color Map (CHI)	Gray	Sets to display a Contrast Harmonic Image without adding color.
	A	Sets to display a Contrast Harmonic Image by applying colors from blue to orange.
	B	Sets to display a Contrast Harmonic Image by applying the color blue.
	C	Sets to display the Contrast Harmonic Image by applying a shade of blue lighter than "B".
	D	Sets to display a Contrast Harmonic Image by applying the color orange.
	E	Sets to brown brightness characteristics.
	F	Sets brown brightness characteristics that are lighter than "E".
	G	Sets to blue and yellow brightness characteristics.

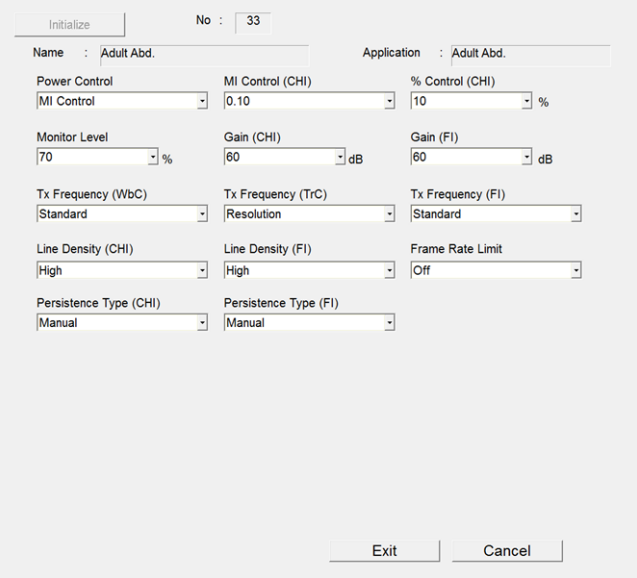
Item	Options	Description
Color Map (FI)	Gray	Sets to display a Fundamental Image without adding color.
	A	Sets to display a Fundamental Image by applying colors from blue to orange.
	B	Sets to display a Fundamental Image by applying the color blue.
	C	Sets to display the Fundamental Image by applying a shade of blue lighter than "B".
	D	Sets to display a Fundamental Image by applying applying the color orange.
	E	Sets to brown brightness characteristics.
	F	Sets brown brightness characteristics that are lighter than "E".
	G	Sets to blue and yellow brightness characteristics.
Flash Time	0.5 to 3.0	Sets the duration of high acoustic pressure transmission in increments of 0.5 seconds..
Flash Link	Off On	Specifies the setting to start accumulating images after high acoustic pressure transmission is performed by using [Flash].
Counter Link	Off On	Sets recording of videos to start when the counter is On.

9.6.30 Image-CHI, FI1

Makes settings related to the CHI mode.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.
   The Preset Set-Up Menu for the selected preset is displayed.
4. Select [Image-CHI, FI1] from the Tree View.
   The Image-CHI, FI1 screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Image-CHI, FI1 Settings

Item	Options	Description
Power Control	MI Control % Control	Switches between MI control and ultrasonic output power control.
MI Control (CHI)	0.00 to 1.85	Sets the MI value for Contrast Harmonic Images when [Power Control] is set to "MI Control".
% Control (CHI)	0 to 100	Sets the ultrasonic output power value (%) for Contrast Harmonic Images when [Power Control] is set to "%Control".
Monitor Level	5 to 100	Sets the Acoustic Power of Fundamental Images.
Gain (CHI)	10 to 90	Sets the gain of Contrast Harmonic Images.
Gain (FI)	10 to 90	Sets the gain of Fundamental Images.
Tx Frequency (WbC)	Penetration	Sets the transmission frequency of a CHI-WbC (P.I.) image to a low value.
	Standard	Sets the transmission frequency of a CHI-WbC (P.I.) image to a slightly low value.
	Resolution	Sets the transmission frequency of a CHI-WbC (P.I.) image to a slightly high value.
	High	Sets the transmission frequency of a CHI-WbC (P.I.) image to a high value.

Item	Options	Description
Tx Frequency (TrC)	Penetration	Sets the transmission frequency of a CHI-TrC (A.M.) image to a low value.
	Standard	Sets the transmission frequency of a CHI-TrC (A.M.) image to a slightly low value.
	Resolution	Sets the transmission frequency of a CHI-TrC (A.M.) image to a slightly high value.
	High	Sets the transmission frequency of a CHI-TrC (A.M.) image to a high value.
Tx Frequency (FI)	Penetration	Sets the transmission frequency of a Fundamental Image to a low value.
	Standard	Sets the transmission frequency of a Fundamental Image to a slightly low value.
	Resolution	Sets the transmission frequency of a Fundamental Image to a slightly high value.
	High	Sets the transmission frequency of a Fundamental Image to a high value.
Line Density (CHI)	Low Medium High	Sets the scan line density of Contrast Harmonic Images. The number of scanning lines increases in the order of "Low", "Medium" and "High".*1
Line Density (FI)	Low Medium High	Sets the scan line density of Fundamental Images. The number of scanning lines increases in the order of "Low", "Medium" and "High".*1
Frame Rate Limit	Off 15 Hz 30 Hz 60 Hz	Sets the frame rate limit of Contrast Harmonic Images.
Persistence Type (CHI)	Auto Manual	Selects frame correlation processing of Contrast Harmonic Images.*1
Persistence Type (FI)	Auto Manual	Sets frame correlation processing of Fundamental Images.*1

*1

In Monitor Mode, the setting value is common to both Contrast Harmonic Images and Fundamental Images, and the setting value for Contrast Harmonic Images is applied.

9.6.31 Image-CHI, FI2

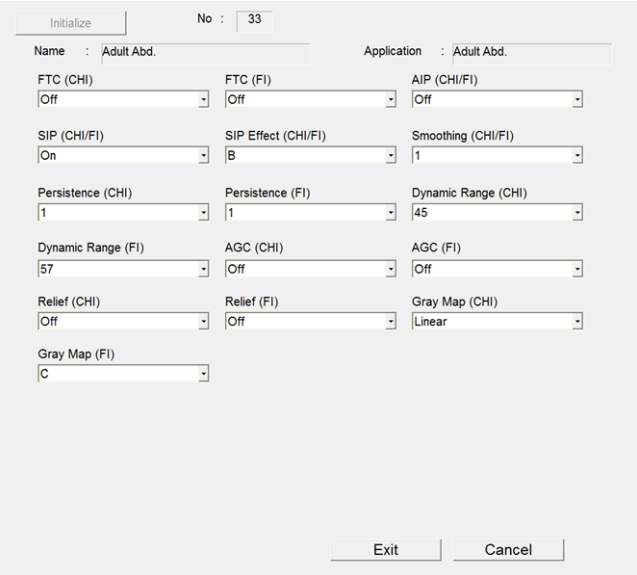
Makes settings related to the CHI mode.

Procedure

1. Select [Preset] from the [Accessories] tab in the function menu.
2. Select [Set-Up].
   The preset setting selection list is displayed.
3. Select a preset from the Name list.

The Preset Set-Up Menu for the selected preset is displayed.

4. Select [Image-CHI, FI2] from the Tree View.
   The Image-CHI, FI2 screen is displayed.



5. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

6. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

Image-CHI, FI2 Settings

Item	Options	Description
FTC (CHI)	Off On	Sets to perform image processing to accentuate and emphasize the edges of Contrast Harmonic Images.
FTC (FI)	Off On	Sets to perform image processing to accentuate and emphasize the edges of Fundamental Images.
AIP (CHI/FI)	Off On	Sets whether to use the AIP image filter.
SIP (CHI/FI)	Off On	Sets whether to use the SIP image filter.
SIP Effect (CHI/FI)	A B C	Displays the level of the SIP image filter.
Smoothing (CHI/FI)	Off	Sets to display images without correlating scan directions at the same depth.
	1 to 15	Sets to correlate scan directions at the same depth and sets the level to create a smooth image.

Item	Options	Description
Persistence (CHI)	Off	Sets correlation processing between image frames of a Contrast Harmonic Image to "Off".
	1 to 15	Sets the level of correlation processing between image frames of a Contrast Harmonic Image.*1
Persistence (FI)	Off	Sets correlation processing between image frames of a Fundamental Image to "Off".
	1 to 15	Sets the level of correlation processing between image frames of a Fundamental Image.*1
Dynamic Range (CHI)	36 to 96	Sets the dynamic range of Contrast Harmonic Images.
Dynamic Range (FI)	36 to 96	Sets the dynamic range of Fundamental Images.
AGC (CHI)	Off	Turns "Off" tissue boundary emphasis.
	1 to 15	Sets the level of tissue boundary emphasis.
AGC (FI)	Off	Turns "Off" tissue boundary emphasis.
	1 to 15	Sets the level of tissue boundary emphasis.
Relief (CHI)	Off Low Medium High	Sets the edge enhancement of Contrast Harmonic Images.
Relief (FI)	Off Low Medium High	Sets the edge enhancement of Fundamental Images.
Gray Map (CHI)	Linear A B C D	Sets the correction curve that matches the brightness characteristics of Contrast Harmonic Images.
Gray Map (FI)	Linear A B C D	Sets the correction curve that matches the brightness characteristics of Fundamental Images.

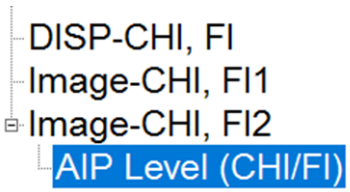
*1

In Monitor Mode, the setting value is common to both Contrast Harmonic Images and Fundamental Images, and the setting value for Contrast Harmonic Images is applied.

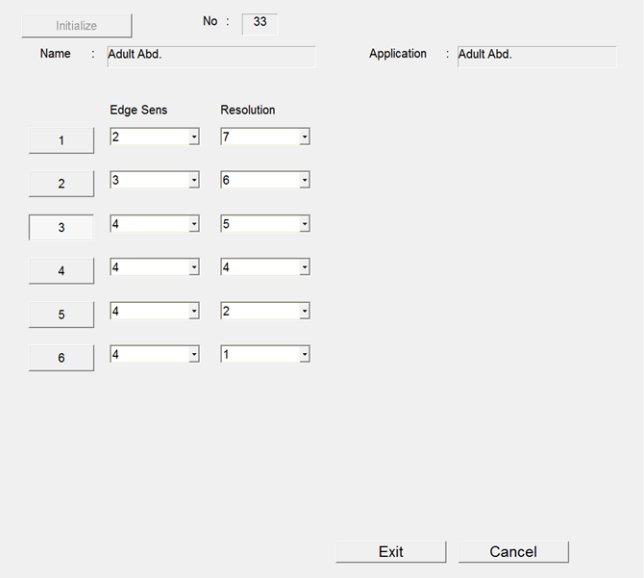
(1) AIP Level (CHI/FI) Settings

Procedure

1. Select the [+] mark displayed in front of Image-CHI, FI2 in the Tree view.
   Displays a Tree View of AIP Level (CHI/FI).



2. Select [AIP Level (CHI/FI)] from the Tree View.
   The AIP Level (CHI/FI) screen is displayed.



3. Change item settings.
   To return to the position of the factory default
   Select [Initialize].

4. Select the [Exit].
   This finalizes the changed settings and redisplays the preset setting selection list.
   Select [Cancel] to discard the changes and return to the preset setting selection list.

AIP Level (CHI/FI) Settings

Item	Options	Description
No.	1 to 6	Sets the default No.
Edge Sens	1 to 8	Sets the sensitivity level of detection for border areas between different characteristics.
Resolution	1 to 8	Sets whether to emphasize spatial resolution or speckle noise removal. Raise the level to improve spatial resolution.

10

Contrast Harmonic Imaging (CHI)

10.1 Overview of Contrast Harmonic Imaging (CHI)
10.2 CHI mode

10.1 Overview of Contrast Harmonic Imaging (CHI)

The Contrast Harmonic Imaging (CHI) function makes the ultrasound contrast agent circulating in tissues or injected into tissues more visible.
The optional SOP-AR50-44 is required.

- Transmission and reception methods used in CHI mode
  - WbC (Wide-band Contrast Harmonic Imaging)
    The Pulse Inversion method enables reception of echoes from the ultrasound contrast agent across a broad spectrum to display a high-resolution Contrast Harmonic Image.
  - TrC (Tissue Reduction Contrast Harmonic Imaging)
    The Amplitude Modulation method enables suppression of echoes from tissue and reception of signals from the ultrasound contrast agent to display a high-sensitivity Contrast Harmonic Image.
- Displayed Image
  - Contrast Harmonic Image (CHI)
    Receives signals from the ultrasound contrast agent and displays images. If it is necessary to clearly indicate the transmission and reception method, list the method as CHI-WbC or CHI-TrC.
  - Fundamental Image (FI)
    Displays an image obtained by transmitting and receiving the fundamental harmonic.
- CHI Specific Function
  - Monitor Mode
    Alternately sends and receives Contrast Harmonic Images and Fundamental Images and displays them in the dual-screen view.
    It allows you to check on the condition of the subject while also monitoring the flow of the ultrasound contrast agent.
  - Flash
    Performs high acoustic pressure transmission and destroys the ultrasound contrast agent. After the destruction of the ultrasound contrast agent, you can observe its reflux.
- Counter
  This measures and displays the amount of time since the ultrasound contrast agent was administered. A function is provided to start recording video when the counter reads "00:00".

10.1.1 Precautions for use of ultrasound contrast agents

The following are precautions for using the Diagnostic Ultrasound System together with ultrasound contrast agents.
Only use licensed medications for the ultrasound contrast agent.

For information about its use, capacity, precautions, storage, and disposal, see the documentation for the ultrasound contrast agent .

CAUTION

When using ultrasound contrast agents during examinations, always pay constant attention to the patient's condition.
In a perfusion examination using ultrasound contrast agent, the pulse rhythm of the heart might be disturbed even if the mechanical index (MI) is within the diagnostic range.

Always perform examinations using the minimum required acoustic pressure for diagnosis.
Operation of the ultrasound contrast agent can cause signification mechanical effects (cavitation) on the body.

10.2 CHI mode

10.2.1 Displaying a CHI (Contrast Harmonic Imaging) mode

Prior confirmation

Check the following item before enabling CHI mode.

- Observations in CHI Mode can only be performed with a probe intended for CHI.For details on CHI compatibility, see the separate manual "Instructions for Use".
  For information about handling probes, see the documentation provided with the probe.

(1) Starting CHI mode

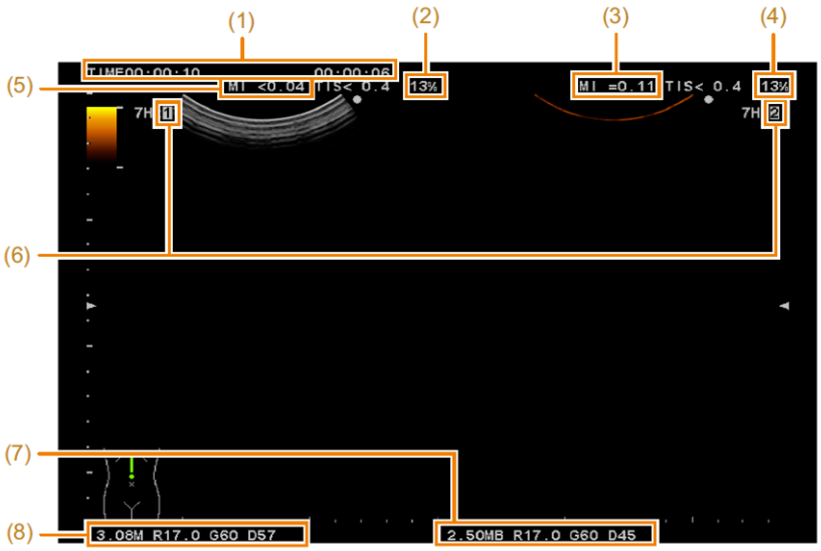
Prior confirmation

- Use the preset ([Preset Set-Up Menu > Menu-Function]) to assign [CHI Method] and [Frequency (CHI)] to the function menu.
- Assign [CHI] to Software Button by using the preset ([Preset Set-Up Menu > Software Button]).

Procedure

1. Tap the [CHI] software button.
   A Contrast Harmonic Image appears and the CHI Menu is displayed under the CHI tab in the function menu.

Example of screen display (In Monitor Mode)



(1) Counter
Left: Counter, Right: Counter (B)

(2) Ultrasonic output power value of a Fundamental Image

(3) MI value of a Contrast Harmonic Image

(4) Ultrasonic output power value of a Contrast Harmonic Image

(5) MI value of a Fundamental Image

(6) Cine memory number

(7) Frequency, display depth, gain value, and dynamic range of a Contrast Harmonic Image

(8) Frequency, display depth, gain value and dynamic range of a Fundamental Image

(2) Adjusting images

Prior confirmation

- Assign [Gain (FI)] to the function menu.

Procedure

1. Adjust the gain of Contrast Harmonic Images.
   - Turn the [B Gain] rotary encoder to adjust the gain.
2. Adjust the gain of Fundamental Images.
   - Use [Gain (FI)] on the function menu to adjust the gain.

10.2.2 Adjusting the gain

Adjust the gain of Contrast Harmonic Images and Fundamental Images.

Procedure

- To adjust the gain of Contrast Harmonic Images, turn the [B Gain] rotary encoder.
- To adjust the gain of Fundamental Images, turn [Gain (FI)] in the function menu.

10.2.3 Adjusting the ultrasonic output power

Ultrasonic output power is controlled either by using the % control that switches the power by using a percentage, where the maximum output is represented as 100%, or by using the MI control that fixes the MI (Mechanical Index) value even if the transmission conditions change. You can set the control method by using [Power Control] in the preset ([Preset Set-Up Menu > Image-CHI, FI1]).

Procedure

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

10.2.4 Displaying a Fundamental Image and CHI mode image in the dual-screen view (monitor mode)

The dual-screen view is used to display Fundamental and CHI mode images to monitor the target under observation.
The CHI mode image before administering the ultrasound contrast agent appears dark overall, making it a difficult image to use for observation. By simultaneously displaying the CHI mode image and fundamental image in Monitor Mode, you can monitor the fundamental image for observation while checking the flow of the ultrasound contrast agent in the CHI mode image.

Procedure

1. Display the image in CHI Mode.
2. Select [Monitor Mode] from the function CHI menu.
   The Fundamental Image is displayed on the left, and the Contrast Harmonic Image is displayed on the right of the dual-screen view.

(1) Adjusting the transmitter voltage of Fundamental Images

Procedure

- Select and set [Monitor Level] from the F.I. tab in the function menu.

10.2.5 Switching between a Contrast Harmonic Image and Fundamental Image in a single screen: Display Image

You can switch between a Contrast Harmonic Image and Fundamental Image in a single screen.

Procedure

- Select [Display Image] from the function CHI menu.
  The display changes in order of Contrast Harmonic Image, Fundamental Image, Contrast Harmonic Image.
  In Display Image, a Contrast Harmonic Image is displayed as Contrast and a Fundamental Image is displayed as Fundamental.

10.2.6 Performing high acoustic pressure transmission

You can observe reflux of the ultrasound contrast agent by first performing high acoustic pressure transmission, which destroys the ultrasound contrast agent.

(1) Observing ultrasound contrast agent reflux (Flash)

Procedure

1. Display the image in CHI Mode.
2. Select [Flash] from the function CHI menu.
   High acoustic pressure transmission is performed, and the ultrasound contrast agent is destroyed.

(2) Setting the Flash time

Prior confirmation

Use the preset ([Preset Set-Up Menu > Menu-Function]) to assign [Flash Time] to the function menu.

Procedure

- Set [Flash Time] from the function menu.
  You can set the flash time from 0.5 to 3.0 seconds in 0.5-second increments.

10.2.7 Displaying the maximum brightness value in an overlay display

This improves the visibility of the ultrasound contrast agent.

Procedure

1. Display the image in CHI Mode.
2. Select [Accumulation] from the function menu.
   The maximum brightness value is displayed in an overlay display for each frame on a Contrast Harmonic Image.

(1) Starting to accumulate images after Flash

Prior confirmation

Use the preset ([Preset Set-Up Menu > Menu-Function]) to assign [Flash Link] to the function menu.

Procedure

1. Display the image in CHI Mode.
2. Select [Flash Link] from the function menu.
   An accumulation is displayed as a video after Flash.

NOTE: When [Accumulation] is Off and [Flash Link] is On, an accumulation image is displayed as a video after Flash.

10.2.8 Recording CHI mode images

Contrast Harmonic Images are saved to a location specified by Store Media.
NOTE: [Data Format] in CHI mode is [Video Clip] only.
NOTE: [Acquisition Mode] in CHI mode is [Manual] only.

(1) When Counter Link is On

Procedure

1. Display the image in CHI Mode.
2. Select either [Counter] or [Counter (B)].
   Video acquisition starts.
3. Press [User 3 (Store)] key to complete the save operation.
   The video capture process ends.

(2) When Counter Link is Off

Procedure

1. Display the image in CHI Mode.
2. Press the [User 3 (Store)]key.
   Video acquisition starts.
3. Press [User 3 (Store)] key to complete the save operation.
   The video capture process ends.

10.2.9 Finishing CHI

Procedure

- Tap the [CHI] software button.

10.2.10 Touch panel menus

(1) Menu

Menu	Options	Description
Accumulation	Off On	Turns accumulation display Off or On.
Gain (FI)	10 to 90	Adjusts the gain of Fundamental Images.
AGC (CHI)	Off 1 to 15	Sets AGC (Auto Gain Control) for Contrast Harmonic Images.
AGC (FI)	Off 1 to 15	Sets AGC (Auto Gain Control) for Fundamental Images.

Menu	Options	Description
AIP (CHI/FI)	Off On	Sets whether to perform AIP image processing.
AIP Edge Sens (CHI/FI)	1 to 8	Sets the sensitivity level of detection for border areas between different characteristics.
AIP Level (CHI/FI)	1 to 6	Selects the pattern that combines the settings for [AIP Edge Sens(CHI/FI)] and [AIP Resolution (CHI/FI)].
AIP Resolution (CHI/FI)	1 to 8	Sets the level for removing speckle noise.
CHI Method	WbC (P.I.)	Sets the transmission and reception method of CHI mode to WbC (P.I.).
	TrC (A.M.)	Sets the transmission and reception method of CHI mode to TrC (A.M.).
Color Map (CHI)	Gray	Displays a Contrast Harmonic Image in gray (white to black).
	A B C D E F G	Sets the color map of Contrast Harmonic Images.
Color Map (FI)	Gray	Displays a Fundamental Image in gray (white to black).
	A B C D E F G	Sets the color map of Fundamental Images.
Counter Link	Off On	Sets whether to start recording video when the counter starts.
Display Image	Contrast Fundamental	Switches between a Contrast Harmonic Image and Fundamental Image when displayed in a single screen.
Dynamic Range (CHI)	36 to 96	Sets the dynamic range of Contrast Harmonic Images.
Dynamic Range (FI)	36 to 96	Sets the dynamic range of Fundamental Images.
Flash Link	Off On	Sets whether to enable an accumulation after Flash.
Flash		Performs high acoustic pressure transmission when selected.
Flash Time	0.5sec 1.0sec 1.5sec 2.0sec 2.5sec 3.0sec	Sets the duration of high acoustic pressure transmission.

Menu	Options	Description
Frame Rate Limit	Off 15Hz 30Hz 60Hz	Limits the frame rate of Contrast Harmonic Images.
Frequency (CHI)	Std Reso	Sets the transmission frequency of Contrast Harmonic Images.
Frequency (FI)	Penet Std Reso High	Sets Transmit for fundamental images.
FTC (CHI)	Off On	Sets FTC of Contrast Harmonic Images.
FTC (FI)	Off On	Sets the FTC of Fundamental Images.
Graymap (CHI)	Linear A B C D	Sets the gray map of Contrast Harmonic Images.
Graymap (FI)	Linear A B C D	Sets the gray map of Fundamental Images.
Line Density (CHI)	Low Med High	Sets the scan line density of Contrast Harmonic Images.
Line Density (FI)	Low Med High	Sets the scan line density of Fundamental Images.
Monitor Mode	Off On	Turn Off or On Monitor Mode.
Monitor Level	5 to 100	Sets the ultrasonic output power of Fundamental Images.
Persistence (CHI)	Off 1 to 15	Sets the persistence level of Contrast Harmonic Images.
Persistence (FI)	Off 1 to 15	Sets the persistence level of Fundamental Images.
Persistence Type (CHI)	Auto Manual	Toggles between the Auto setting and the Manual setting for setting the persistence level of Contrast Harmonic Images.
Persistence Type (FI)	Auto Manual	Toggles between the Auto setting and the Manual setting for setting the persistence level of Fundamental Images.

Menu	Options	Description
Relief (CHI)	Off Low Med High	Sets the relief level of Contrast Harmonic Images.
Relief(FI)	Off Low Med High	Sets the relief level of Fundamental Images.
SIP (CHI/FI)	Off On	Sets SIP to Off or On.
SIP Effect (CHI/FI)	A B C	Sets the level of SIP image processing.

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