

Presets

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4.1 Preset Configuration

Preset configuration is common across all applications (clinical fields). Abdom/Rad Preset is used here as an example.

1. Create Measurement Tools

Use the following functions to make the measurement method, mark size, and report display settings for basic and application measurements.

Basic Measurement

Sets the basic measurement method, mark style, and result display.

Measured Method & Display Items		Sets the measurement method, mark style, and result display items, for each measurement type.
	B.Mode	B mode measurement settings.
	M.Mode	M mode measurement settings.
	D.Mode	D mode measurement settings.
	F.Mode	Color Doppler mode measurement settings.
Caliper Mark Control		Sets the measurement mark size and dot line, correction function during a trace, and how to revise the trace.
Unit Selection		Display unit settings for taking measurements.
Caliper Auto Off		Settings for automatically erasing measurement marks and results when the image is unfrozen.
Display Form		Configures the settings for the style in which basic measurement results are to be displayed.
	Mark Display	Configures the settings for displaying caliper marks.

Application Measurement

Sets the application measurement method, mark style, and result display.

Measured Method & Display Items* ¹		Sets the measurement method, mark style, and result display items, for application measurements.
	B.Mode	B mode measurement settings.
	M.Mode	M mode measurement settings.
	D.Mode	D mode measurement settings.
	F.Mode	Color Doppler mode measurement settings.
Caliper Mark Control* ¹		Settings for application measurement mark sizes and dot lines.
Unit Selection* ¹		Settings for the display units for taking application measurements.
Caliper Auto Off		Settings for automatically erasing measurement marks and results when the image is unfrozen.
Report Data* ¹		Settings for displaying measurement values in reports.
Display Form		Settings for the style in which the application measurement results are to be displayed.
	Mark Display	Configures the settings for displaying caliper marks.
User's Calculation		Settings for the formulas for user-registered indices.

	Reserved Word	Settings for index names (reserved words) registered by the user.
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*1.

Application (clinical field) is not displayed under Other.

2. Study Assignment

Settings for menu and report display layout and other items by Study unit.

Defined Study name

Menu Assign	Function for creating and editing measurement menus.
Combined Report Display*1	Settings for the information presented in reports.
Other	Settings for the display of measurement operational guide messages.

*1.

Application (clinical field) is not displayed under Other.

3. SW Assignment

Assignment of measurement functions to keys or the touch panel.

SW Assignment

Sets the measurement function that is started when a key or button is pressed.

+Mark Key Assignment	Sets the measurement function that is started when the [Caliper] key is pressed.
Hot Key Assignment	Sets the measurement function that starts when a keyboard key is selected.
Measure SW Assignment	Assigns a measurement function to a direct switch.
Control Menu Assignment	Assigns the control menu on the touch panel.

4.2 Displaying Presets

Use the steps below to display measurement presets.

Procedure

1. Press the [Measurement] key.
2. Select [Preset] on the touch panel.
3. Select an application.
4. Select the target item from the Tree view.
5. Change the parameter.

To initialize all parameters

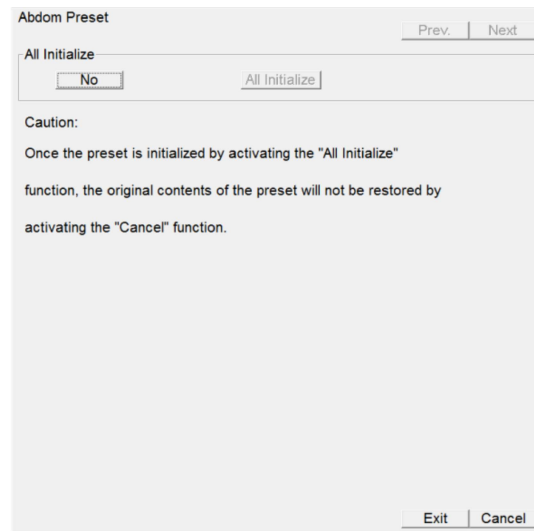
Select the top level of the tree. Select [No] on screen, and select [All Initialize] when the button changes to [Yes]. The parameters for the displayed application change to the factory default settings.



Once [All Initialize] is selected, states before factory default settings were changed to cannot be restored even if [Cancel] is selected.

Select [Exit] to save the displayed settings.

Select [Cancel] to close the preset screen and return to the scanning screen.



4.3 Measurement Settings: Create Measurement Tools

Use this function to set the measurement method, mark size, and report display.

Create Measurement Tools consist of Basic Measurements (basic measurement settings) and Application Measurements (application measurement settings). Each type of measurement contains the following items.

Preset Items	Preset content
Measured Method & Display Items	Measurement methods and result display settings
Caliper Mark Control	Caliper mark display settings
Unit Selection	Result display unit settings
Caliper Auto Off	Display settings for measurement results and caliper marks after freeze is canceled
Report Data	Report display settings (Application Measurement only)
Display Form	Display settings for measurement results and caliper marks during measurement, or for the measurement menu tree
Menu Classification	Settings for grouping in the measurement menu (only for Cardio and Cardio Pediatrics application measurements)
Display Menu	Settings for measurement items to be displayed in the first level of the measurement menu tree (only for Cardio and Cardio Pediatrics in Application Measurement)
User's Calculation	Settings for calculation formulas for indexes (application measurements only)

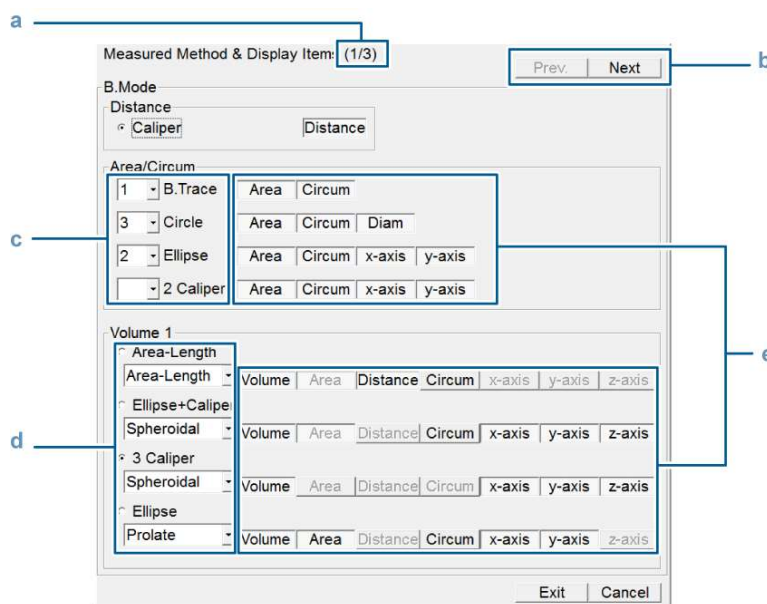
The Basic Measurement top page has a function for copying basic measurement settings in other applications (diagnostic fields).



Copy From	Copy from Application list
Copy	Copies all the basic measurement settings for the application selected using [Copy From].

4.3.1 Measurement Method and Result Display Settings: Measured Method & Display Items

These functions can set the operating environment such as measurement methods, mark types, result displays, and units that are used in measurements when basic measurements are executed.



- a Displayed page/total pages
- b Return to the previous page/ proceed to the next page
- c Selecting the measurement method and swapping the display order on the touch panel
- d Measurement method selection
Alternative selection: Area-Length / Ellipse+Caliper / 3 Caliper / Ellipse
- e Selection buttons for result display items

When there are multiple measurement methods, you can also set the order in which measurement methods are displayed on the touch panel.

Use the pull-down menu to set the order they are displayed. Fields whose data are not needed can be left blank.

Presets relating to other basic measurement functions are composed and placed, and operations are set, in the same way as above.

4.3.2 Caliper Mark Display Settings: Caliper Mark Control

Use this function to set the size and method for displaying caliper marks, and dotted line display patterns.



(1) Caliper Mark Control

Sets the size and method for displaying caliper marks.





Settings	Options	Description
Size	Small	Displays small caliper marks.
	Medium	Displays medium caliper marks.
	Large	Displays large caliper marks.
Type	A	Displays fixed marks as plus signs (+).
	B	Displays fixed marks as circles (○).
Caliper Mark Display in Dual	Single	Displays caliper marks in only one screen in Dual CF mode, Dual Elasto mode, or monitor mode.
	Dual	Displays caliper marks in both screens in Dual CF mode, Dual Elasto mode, or monitor mode. When an operation is performed on a caliper mark on one of the screens, the caliper mark on the other screen follows the motion of the operated caliper mark.




(2) Dotted Line

Sets how the line that connects the start and end points of the caliper mark is displayed.


Caliper mark and trace line settings are made separately.




[B Caliper], [M Caliper], [D Caliper]

Options	Display example	Description
mm		(B mode only) Displays a dotted line between the start and end points. Sets the space between points in mm units.
Pixels		Displays a dotted line between the start and end points. Set the space between points in pixel units.
Line		Displays the line between the start and end points with a straight line.
NA		Does not display any line between the start and end points.

Settings	Options	Description
B Trace D Trace		Displays a line between the start and end points.
		Displays a broken line between the start and end points.
		Displays a dotted line between the start and end points.

(3) Mark Indicator

Options	Display example	Description
ON		Displays the measurement number to the lower right of the caliper marks (for the measurement result).

Options	Display example	Description
OFF		Displays only the caliper marks.
Small		Displays the measurement number in a small size font to the lower right of the caliper marks.
Medium		Displays the measurement number in a medium size font to the lower right of the caliper marks.

Settings	Options	Description
Application Measurement	ON	When performing application measurements on B-mode images, the measurement name appears near the caliper mark when the measurement is confirmed. NOTE: This is not supported for Preset Cardio and Preset Cardio Pediatrics. NOTE: This might not be displayed in some measurement menus.
	OFF	When performing application measurements on B-mode images, the measurement name does not appear near the caliper mark when the measurement is confirmed.

(4) B. Manual Trace

Settings	Options	Description
Manual Trace Type	Strict	Does not correct the trace line during a manual trace of a B mode image.
	Smooth	Corrects the trace line to make it smoother during a manual trace of a B mode image.
Go Back	Rotary Encoder or Track ball	Allows you to use the [Pointer] rotary encoder and the trackball when correcting a trace line during a manual trace of a B mode image.
	Rotary Encoder	Allows you to use the [Pointer] rotary encoder when correcting a trace line during a manual trace of a B mode image.

(5) D. Manual Trace

Settings	Options	Description
Go Back	Rotary Encoder or Track ball	Allows you to use the [Pointer] rotary encoder and the trackball when correcting a trace line during a manual trace of a D mode waveform.
	Rotary Encoder	Allows you to use the [Pointer] rotary encoder when correcting a trace line during a manual trace of a D mode waveform.

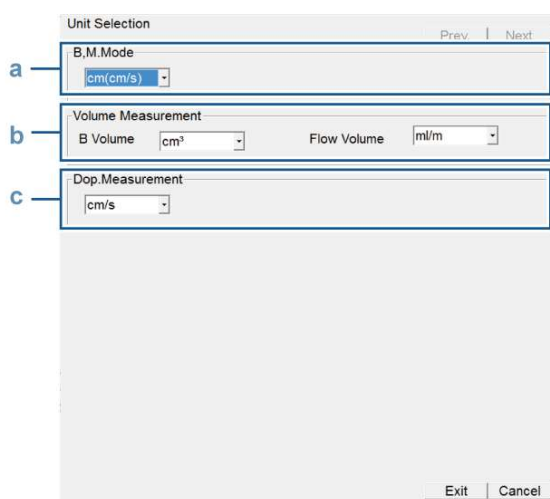


Settings	Options	Description
[Enter]/[L] Key Assignment	Next/Change	Assigns Next to the [Enter] key and Change to the [L] key.
	Change/Next	Assigns Change to the [Enter] key and Next to the [L] key.
Use [L] Key	Yes	The [L] key is operational during measurement.
	No	The [L] key is not operational during measurement.
Ellipse Modify Method	Type A	Adjusts the Ellipse in order from the end point of the long axis, the length of the short axis, the start point of the long axis, the length of the short axis, the end point of the long axis, and so on.
	Type B	Adjusts the Ellipse in order from the end point of the long axis, the start point of the long axis, the length of the short axis, the end point of the long axis, and so on.
Undo SW	Cancel	The [UNDO] key works as [Cancel] during measurement.
	Send	The [UNDO] key works as [Send] during measurement.

4.3.3 Displaying Unit Settings for Measurement Results: Unit Selection

Use this function to set the units for displaying measurement results.

Select the display units from the list for both basic measurements and application measurements.



- | | | |
|---|--------------------|--|
| a | B, M Mode | Sets units for basic measurement results for B mode and M mode. |
| b | Volume Measurement | Sets units for basic volume measurement results for B mode and D mode. |
| c | Dop Measurement*1 | Sets the blood velocity and myocardial movement velocity units for displaying basic Doppler measurement results. |

*1.

If the application is Cardio or Cardio Pediatrics, the unit of myocardial movement velocity is fixed to cm/s in TDI measurement results.



4.3.4 Caliper Mark and Measurement Result Display Settings for When Freeze Is Canceled: Caliper Auto Off

Use this function to show or hide caliper marks and measurement results when freeze is canceled.

The options for basic measurements and application measurements differ.

Basic Measurement

Settings	Options	Description
Measurement parameters	OFF	Keeps displaying caliper marks and measurement results even after freeze is canceled.
	ON	Clears the display of caliper marks and measurement results when freeze is canceled.
	ON: Active	Clears the caliper marks of the active image and measurement results.
Search Clear	ON	Clears caliper marks when using image search.
	OFF	Leaves caliper marks displayed when using image search.

Application Measurement

Settings	Options	Description
Measurement parameters	OFF	Keeps displaying caliper marks and measurement results even after freeze is canceled.
	ON	Clears the display of caliper marks and measurement results when freeze is canceled.
	All Mark Erase	Clears all caliper marks when freeze is canceled.
	Remain Active Mark	Clears all caliper marks other than those currently active when freeze is canceled.
	Mark Erase: Active	Keeps displaying measurement results and clears the caliper marks of the active image when freeze is canceled (only GA Measured, FW Measured and FW Ratio of OB Preset).

4.3.5 Report Display Settings: Report Data

Use this function to set the conditions for displaying screens and number of data items in reports when performing application measurements.

NOTE: This preset is not for basic measurements or application measurements that cannot display reports.

Settings	Options	Description
Display Data	Current	Displays the latest measurement results.
	Average	Displays average values for measurement results.
	Highest Vel.* ¹	Displays the maximum velocity.



Settings	Options	Description
Transfer from Report Data* ²	ON	Uses data from reports when taking other measurements.
	OFF	Does not use data from reports when taking other measurements.
Transfer from Report Data>Only 1ch* ³	ON	Displays calipers when measurement items to be remeasured are selected for measurement other than package measurement. NOTE: This function is available when the Transfer from Report Data setting is [ON].
	OFF	Displays the values of the previous measurement results, without displaying calipers, when measurement items to be remeasured are selected for measurement other than package measurement.
Storage Data Number	1 to 6, 10* ⁴	Sets the number of measurement results to display in the report if the same measurement is performed repeatedly.
Save Wave Trace* ⁵	ON	Saves Doppler waveform trace lines.
	OFF	Does not save Doppler waveform trace lines.
Transfer List Display	Manual	Opens the Transfer Menu manually after performing a basic measurement.
	Auto	Opens the Transfer Menu automatically after performing a basic measurement.
Normal Range Function* ⁶	ON	Displays whether the measurement values in a report are within the normal range or outside the normal range.
	OFF	Does not display whether the measurement values in a report are within the normal range or outside the normal range.
Select BPP Scoring Criteria* ⁷	Manning et al.	Sets Manning et al. for the evaluation criteria to be used as the BPP Report.
	Vintzileos et al.	Sets Vintzileos et al. for the evaluation criteria to be used as the BPP Report.
Clinical Data Display of Exam. Data History* ⁷	ON	Displays a dialog box that shows past measurement results for the same patient (if such past measurement results exist) when the arrow is placed close to individual results in the History view.
	OFF	Does not display a dialog box that shows past measurement results for the same patient (if such past measurement results exist) when the arrow is placed close to individual results in the History view.
Calculate of Composite US-GA* ⁷	All Studies	Calculates US-GA based on every Study.
	One Study	Calculates US-GA based on the currently selected Study.

Settings	Options	Description
NT Report Display Order ^{*7}	Descending	Sets descending order for the display of NT and Auto NT reports.
	Measurement	Sets measurement order for the display of NT and Auto NT reports.
Follicles Report Display Order ^{*8}	Descending	Sets descending order for the display of Follicles and Follicles Volume reports.
	Measurement	Sets measurement order for the display of Follicles and Follicles Volume reports.
ICA Report Display ^{*9}	ICA	Displays ICA as one measurement item in reports. A maximum of three of this item can be displayed.
	prox,mid,distal ICA	Displays ICA as three measurement values (prox ICA, mid ICA, and distal ICA) in reports.

- *1.
You can specify this item when the application is Vascular.
- *2.
When the application is Cardio or Cardio Pediatrics, ON and OFF can be set independently in some of the measurement menus.
- *3.
You can specify this item when the application is OB or GYN.
- *4.
You can specify this item when the application is Cardio or Cardio Pediatrics.
- *5.
You can specify this item when the application is Abdom or Vascular.
- *6.
You can specify this item when the application is Cardio.
- *7.
You can specify this item when the application is OB.
- *8.
You can specify this item when the application is GYN.
- *9.
You can specify this item when the application is Vascular.

(1) Pasted US Image Screen

- Display Pasted US Image Form on the Screen
Settings for the layout of ultrasound images displayed in reports.

Options	Description
1x1	Displays one image on the report screen.
2x2	Displays images on the report screen in two rows x two columns.
3x2	Displays images on the report screen in three rows x two columns.
3x3	Display images on the report screen in three rows x three columns.



- Automatically be Displayed US Images Number
Sets the number of images to display in the US Image Block of reports.

(2) DICOM SR

NOTE: You can specify this item when the application is Abdom, OB, GYN, Cardio, Cardio Pediatrics, or Vascular.

Settings	Options	Description
Output Measurement Data	Report Data	Outputs only the values displayed in the report when a DICOM SR file is created.
	All Storage Data	Outputs the measurement values from all measurements as well as the calculated values displayed in the report when a DICOM SR file is created.
Output Image,Graphic Data	ON	Outputs image information and caliper mark information when a DICOM SR file is created. NOTE: If you display an image that is different from the one at measurement and save the image, the measurement results will not match the image sent by DICOM SR. Save the measured image as is.
	OFF	Does not output image information and caliper mark information when a DICOM SR file is created.
Measurement confirm by [STORE] Key	ON	Confirms the measurement of the active caliper mark when the [Store] key is pressed.
	OFF	Does not confirm the measurement of the active caliper mark when the [Store] key is pressed.

4.3.6 Settings for Measurement Result Display Style: Display Form

Sets the display orientation to show measurement results.

Settings	Options	Description
Result Display Window Style	Sideways	Displays measurement results sideways.
	Lengthwise	Displays measurement results lengthwise.
Package Result Display	Multi	Displays multiple measurement results.
	Single	Displays only the current measurement result.
Basic measurements are displayed together.	No	Displays only basic measurement results or application measurement results.
	Yes	Displays both basic measurement results and application measurement results.

(1) Display Measurement Menu

NOTE: You can specify this item when the application is Cardio or Cardio Pediatrics.

Settings	Options	Description
Display	On	Displays the measurement menu tree.
	Off	Hides the measurement menu tree.



Settings	Options	Description
Position	Left	Displays the measurement menu tree on the left side of the screen.
	Right	Displays the measurement menu tree on the right side of the screen.

(2) Multiple result display

If you want to display the results of multiple application measurements, set 5 or a smaller value for Storage Data Number in the preset ([Create Measurement Tools] > [Application Measurement] > [Report Data]).

NOTE: You can specify this item when the application is Cardio or Cardio Pediatrics.

Settings	Options	Description
LVOT Flow/RVOT Flow	ON	Displays the results of multiple measurements for LVOT Flow and RVOT Flow.
	OFF	Does not display the results of multiple measurements for LVOT Flow and RVOT Flow.
MS Flow/AS Flow/TS Flow/PS Flow	ON	Displays the results of multiple measurements for MS Flow, AS Flow, TS Flow, and PS Flow.
	OFF	Does not display the results of multiple measurements for MS Flow, AS Flow, TS Flow, and PS Flow.
Trans M Flow/TDI PW MA/TDI PW 1/TDI PW 2	ON	Displays the results of multiple measurements for Trans M Flow, TDI PW MA, TDI PW 1, and TDI PW 2. NOTE: If Dual Dop Auto Measurement in the preset ([Preset Setup] > [Application] > [(Application View)] > [Edit Data] > [Doppler] > [Common]) is On, you cannot display the results of multiple measurements.
	OFF	Does not display the results of multiple measurements for Trans M Flow, TDI PW MA, TDI PW 1, and TDI PW 2.
MR Flow/AR Flow/TR Flow/PR Flow	ON	Displays the results of multiple measurements for MR Flow, AR Flow, TR Flow, and PR Flow.
	OFF	Does not display the results of multiple measurements for MR Flow, AR Flow, TR Flow, and PR Flow.
PV Flow	ON	Displays the results of multiple measurements for PV Flow.
	OFF	Does not display the results of multiple measurements for PV Flow.
MR Vol. PISA/AR Vol. PISA/TR Vol. PISA/PR Vol. PISA	ON	Displays the results of multiple measurements for MR Vol. PISA, AR Vol. PISA, TR Vol. PISA, and PR Vol. PISA.
	OFF	Does not display the results of multiple measurements for MR Vol. PISA, AR Vol. PISA, TR Vol. PISA, and PR Vol. PISA.

(3) Mark Display

Displays caliper marks during measurements.

Settings	Options	Description
Basic measurement items Application measurement items	Mark Display	Displays all caliper marks.
	Mark Active	Displays only the caliper marks currently used for measurement.

4.3.7 Measurement Item Grouping Settings: Menu Classification, Display Menu

Use this setting for grouping measurement items.

This preset is only displayed for Cardio and Cardio Pediatrics application measurements. When measurement items are grouped together, groups can be registered for measurement menus by using a group name. Select a grouping name in a measurement menu to display grouped measurements.

(1) Menu Classification

Sets the grouping of measurement items to be displayed on the touch panel.

Procedure

1. Display Menu Classification.
2. Select the measurement target mode.
3. Input the grouping name.
 - a. Select the target grouping name.
 - b. Input the grouping name.
 - c. Select [Insert].
4. Select the measurement functions you want to group.
 - a. Select the locations you want to change under Priority.
 - b. Select the measurement from the list.
 - c. Select [Insert].
5. Select [Exit] on the touch panel.

(2) Display Menu

Sets the measurement items to be displayed in the first level of the measurement menu tree.

Procedure

1. Display Display Menu.
2. Select the measurement target mode.
3. Input the grouping name.



- a. Select the target grouping name.
 - b. Input the grouping name.
 - c. Select [Insert].
4. Select the radio button for the location you want to edit.
5. Select the measurement functions you want to group.
 - To register a measurement menu such as M.Simpson or Teicholz, select the radio button for Package.
 - To register a measurement item such as IVSd or LVIDd, select the radio button for Channel.
6. Select the target measurement from the ALL column.
7. Select [Add].
 - The measurement is registered in the Menu.

NOTE: To delete a measurement, select the target measurement from the Menu, and then select [Del.].
8. Edit the display order.
 - a. Select the target measurement from the Menu.
 - b. Select [Up] or [Down].
 - The display order is changed.
9. If necessary, specify settings so that the next measurement item does not start after the measurement items are confirmed.

NOTE: The target measurement items are IVSd, LVIDd, etc.

 - a. Select the measurement item and then select [Append].
 - A dotted line is displayed below the target measurement item.

NOTE: The dotted line is not displayed in the measurement menu tree.
10. Select [Exit].

4.3.8 User Index Calculation Formula: User's Calculation

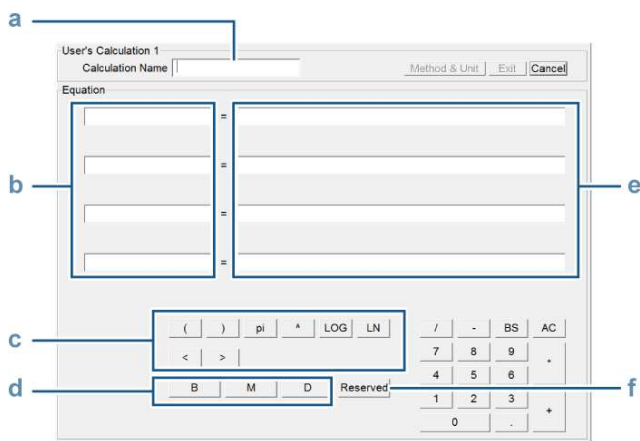
Use this function to combine distance, area, flow velocity and other basic measurement functions to create index calculation formulas, which can then be turned into measurement packages.

You can combine up to four index calculation formulas to create one measurement package. You can create measurement packages that contain a total of 30 calculations per application.

Also, measurement parameters for each application built into the system can be incorporated into formulas, or if user-registered reserved words are created in advance, they can be used when creating multiple formulas.



Settings	Options	Description
Equation Program	Create User's Calculation	Creates measurement packages for index calculation.
	Delete User's Calculation	Deletes measurement packages.
User index calculation formula	U-Calc.1 to 30	Select a user index calculation formula you want to create or delete. If a registered user index calculation formula has a name, the name at the time of registration is displayed.



- a Registering the measurement package name
Using no more than 12 characters, enter the name of the measurement package you want to create. This name will appear in measurement menus.
- b Calculated values and index values
Using no more than 12 characters, enter the value. The initial character must be an alphabetic character and subsequent characters can be alphanumeric characters.
- c This field is mainly for calculation formulas consisting of variables (measurement parameter names).
A total of seven variables (measurement parameter names) can be entered for four index calculation formulas.
An index calculation formula can be up to 180 characters long.
A variable can consist of up to 13 characters.
A constant can consist of up to 20 characters.
Items on the left side of the formula can be used on the right side. In this case, enclose the name on the left side with "< >".
Example: If the first formula is $A = B + C$, then the second formula should be $D = <A> / F$.
- d Select operators for the calculation formula.
- e Call measurement parameters for application measurements supported by each mode.
- f Call registered reserved words.

(1) Deleting User Index Calculation Formulas

Procedure

1. Display [User's Calculation].
2. Select [Delete User's Calculation].



3. Select a user index calculation formula you want to delete.

(2) Registering User Index Calculation Formulas

Procedure

1. Display [User's Calculation].
2. Select [Create User's Calculation].
3. Select a user index calculation formula.
→ The Equation input screen is displayed.
4. Enter a value for Calculation Name.
 - a. Using no more than 12 characters, enter the name of the measurement package you want to create.
→ The name entered for the measurement package will appear in measurement menus.
5. Enter the first equation.
 - a. Using no more than 12 characters, enter the left side of the first formula (answer variable) from the keyboard.
Validation rules for the left side
The initial character must be an alphabetic character. Subsequent characters can be alphanumeric characters.
 - b. Using no more than 180 characters, enter the right side of the first equation (the calculation equation). You can also select operators from a list of operators in the screen.
Validation rules for the right side
Using no more than 13 characters, enter a variable. Using no more than 20 characters, enter a constant.

Entering the measurement parameter name of the application measurement or the user-registered measurement name (reserved word)

A "**Reserved word**" refers to the name of a measurement item for application measurements and the name of a user-registered measurement. Select from [B], [M], [D], and [Reserved], and select the measurement item from the displayed list. Some application measurements may not display a list of measurement parameter names for the application measurement.
6. Enter the second and subsequent equations in the same way as the first.
To use, in subsequent formulas, the left side of a previous formula:
Enclose the left side with < >. Example: If the first formula is $A=B+C$, then the second formula should be $D=<A>/F$.
7. When you have finished entering all formulas, select [Method & Unit].
→ Method & Unit is displayed.
8. Set the answer variables.

User's Calculation 1

Calculation Name Equation Exit Cancel

Method & Unit

Variable	Display	Unit
A	ON	cm
B	ON	Type-in mm
	ON	
	ON	

Measurement

Order	Variable	Mode	Method	Parameter	CH Name
1	A	B	Dist.		Dist.A
2	B	B	Area-T		
3	C	B	Area-C		
4	D	B	Area-E		
5	E	B	Volume-3		
6	F	B	Volume-AL		

To set the display of an answer variable:

Turn ON the Display field to display it. To hide the display, turn OFF the Display field.

To select an answer variable unit:

Select from the Unit list. In the case of units not in the Unit list, select [Type-in] from the Unit list, and use the keyboard to enter the unit, using no more than five characters, in the field displayed on the right.

9. Make settings for measurement variables.
 - a. Select measurement sequence from the Order list.
 - b. Select measurement mode from the Mode list.
 - c. Select the measurement method from the Method list.
 - d. Select the parameters to use if the measurement method provides multiple parameters.
 - e. Select [CH Name] to display the measurement name near the caliper mark.

→ You can set a Method item whose radio button is selected.
10. Select [Exit].

→ The calculation is then registered.

Reference information

4.3.8(4) Registration of Reserved Words: Reserved Word on page 123

(3) Methods and Parameters Usable in User's Calculation

B Mode Method	Parameter	Meaning	Unit
Dist.	No options	Distance	cm
Area-T	Area	Area	cm ²
	Circ	Circumference	cm

B Mode Method	Parameter	Meaning	Unit
Area-C	Area	Area	cm ²
	Circ	Circumference	cm
	Diam	Diameter	cm
Area-E	Area	Area	cm ²
	Circ	Circumference	cm
	x-ax	x-axis	cm
	y-ax	y-axis	cm
Volume-3	Vol.	Volume	cm ³
	x-ax	x-axis	cm
	y-ax	y-axis	cm
	z-ax	z-axis	cm
Volume-AL	Vol.	Volume	cm ³
	Area	Area	cm ²
	Circ	Circumference	cm
	Dist	Distance	cm
Volume-EC	Vol.	Volume	cm ³
	Area	Area	cm ²
	Circ	Circumference	cm
	x-ax	x-axis	cm
	y-ax	y-axis	cm
	z-ax	z-axis	cm
Volume-E	Vol.	Volume	cm ³
	Area	Area	cm ²
	Circ	Circumference	cm
	x-ax	x-axis	cm
	y-ax	y-axis	cm
Type-in	-	Key Input	Select from menus or enter from the keyboard

M Mode Method	Parameter	Meaning	Unit
M Length	No options	Distance	cm
Time	No options	Time	s
Heart rate	No options	Heart rate	BPM
M. VEL	v	Velocity	cm/s
	dD	Distance	cm
	dt	Time	s



M Mode Method	Parameter	Meaning	Unit
Type-in	-	Key Input	Select from menus or enter from the keyboard

D Mode Method	Parameter	Meaning	Unit
Time	No options	Time	s
Heart rate	No options	Heart rate	BPM
D.VEL	No options	Velocity	cm/s
ACCEL	v1	Velocity1	cm/s
	v2	Velocity2	cm/s
	dt	Time	s
	ACC	Accel	cm/s ²
RI	RI	Resistance Index	
	PSV	Peak Systolic Velocity	cm/s
	EDV	End Diastolic Velocity	cm/s
	S/D	S/D Ratio	
P1/2T	No options	Pressure half time	s
D.Caliper 1 and 2	v1	Velocity1	cm/s
	v2	Velocity2	cm/s
	dv	v1 - v2	cm/s
	dt	Time	s
	PG1	Peak pressure gradient 1	mmHg
	PG2	Peak pressure gradient 2	mmHg
	dPG	PG1 - PG2	mmHg
	ACC	Acceleration	cm/s ²
	P1/2T	Pressure half time	s
	VA	Valve Area	cm ²
Mean VEL	MnV	Mean Velocity	cm/s
	VTI	Velocity Time Integral	cm
PI	PI	Pulsatility Index	
	RI	Resistance Index	
	S/D	S/D Ratio	
	PSV	Peak Systolic Velocity	cm/s
	EDV	End Diastolic Velocity	cm/s
	MnV	Mean Velocity	cm/s
	Vm	Mean Velocity	cm/s



D Mode Method	Parameter	Meaning	Unit
D.Trace1/D.Trace2 Steno Flow/Regurg Flow	PI	Pulsatility Index	
	RI	Resistance Index	
	PSV	Peak Systolic Velocity	cm/s
	EDV	End Diastolic Velocity	cm/s
	MnV	Mean Velocity	cm/s
	PG1	Peak pressure gradient 1	mmHg
	PG2	Peak pressure gradient 2	mmHg
	MPG	Mean pressure gradient	mmHg
	VTI	Velocity Time Integral	cm
	ACC	Acceleration	cm/s ²
	FlowT	Flow Time	s
	dt	Time	s
	AccT	Acceleration Time	s
Type-in	-	Key Input	Select from menus or enter from the keyboard

(4) Registration of Reserved Words: Reserved Word

Set the reserved words that the user's calculation permits. A total of 60 reserved words can be registered for each application.

Register reserved words in advance to create formulas with User's Calculation.

NOTE: The measurement parameter names and measurement methods for application measurements cannot be registered or changed.

Settings	Options	Description
Reserved Word Registration	Create Reserved word	Creates a reserved word.
	Delete Reserved word	Deletes a reserved word.



Settings	Options	Description
(Edit reserved words)	Reserved Word 1	Selects reserved words to create or delete. If there is a reserved word, the name set when the reserved word was registered is displayed.

(a) Deleting Registered Reserved Words

Procedure

1. Display the preset Reserved Word.
2. Select [Delete Reserved Word].
3. Select the reserved word you want to delete from the list.

(b) Registering Reserved Words

Procedure

1. Display the preset Reserved Word.
2. Select [Create Reserved Word].
3. Select the Reserved Word you want to register.
→ [Reserved Word Registration] is displayed.
4. For the Variable field, enter the name of the variable using no more than seven alphabetic characters.
5. Select mode for finding the variables from Mode.
6. Select the measurement method from Method.
7. Select up to four measurement parameters in the Parameter fields for a User's Calculation.
→ Available reserved words are listed in the Reserved Name list.
8. If necessary, register the measurement names to display near the caliper mark.
 - a. Enter the measurement name in the Edit Box in the Method field.
NOTE: You can enter a maximum of seven characters.
9. Select [Exit].
→ The reserved word is registered.

4.4 Study Assignment

For Study Assignment, settings are specified for each measurement study unit.

Study Assignment

Settings for menu and report display layout and other items by Study unit.

Preset Items	Preset content
Basic (Defined Study name)	Displays the respective Menu Assign, Combined Report Display, and Other preset by the content of the selected Study.



Preset Items		Preset content
	Menu Assign	Function for creating and editing measurement menus.
	Display Menu Assign	Function for creating and editing the measurement menu tree.
	Combined Report Display	Settings for the information presented in reports.
	Other	Settings for the display of measurement operational guide messages.

4.4.1 Measurement Study Registration and Display Settings: Study Assignment

NOTE: A Study built into the system cannot be deleted or renamed.

(1) Making a New Measurement Study

Procedure

1. Enter the Study name in the Select Study field.
2. Press the [Enter] key.

(2) Copying and Registering an Existing Study

Procedure

1. Enter the copied Study name in the Select Study field.
The Study will be newly added if that Study name does not exist.
2. Select a Study of a copy source from the Copy from Other Study list.
3. Select [Copy].

(3) Deleting a Measurement Study

Procedure

1. Select the Study to delete from the Select Study list.
2. Select [Delete].

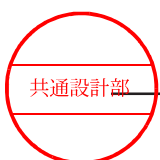
(4) Setting the Study to Be Displayed in the Tree View

Procedure

1. Select a blank field from the Select Display Study on the Left Tree View list.
2. Select the Study to be displayed from the Select Items list.

4.4.2 Measurement Menu Settings: Menu Assign

Assign the measurement menu that is to be displayed when the [Measurement] key is pressed. Assign a menu for each Study.



(1) Adding/swapping Measurement Menus

Procedure

1. Display Menu Assign for the set Study.
2. Select the measurement target mode.
3. Select the menu position to change.
4. Select measurement classification from the Selected Mode Items list.
5. Select the measurement name to register from the Select Mode Items list.
If items are grouped under Menu Classification (Cardio and Cardio Pediatrics only):
The grouping name displayed in Select Mode Items can be registered as a measurement menu.
Measurement items within groupings can also be registered directly to measurement menus.

(2) Deleting Menus

Procedure

1. Display Menu Assign for the Study.
2. Select the measurement target mode.
3. Select the target measurement name.
4. Select [Delete].

4.4.3 Measurement Menu Settings: Display Menu Assign

Assign the measurement menu to be displayed in the measurement menu tree when the [Measurement] key is pressed.

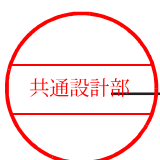
Assign a menu for each Study.

NOTE: User index calculation formulas cannot be registered in the measurement menu tree.

(1) Adding/swapping Measurement Menus

Procedure

1. Display Display Menu Assign for the set Study.
2. Select the measurement target mode.
3. Select the position of the menu that you want to edit.
4. Select the measurement name to be registered from the Selected Items list.
If items are grouped under Display Menu (Cardio and Cardio Pediatrics only):
The grouping name displayed in Selected Items can be registered as a measurement menu.
5. Select [Add].
→ The measurement is registered in the Menu list.



(2) Deleting Menus

Procedure

1. Display the Display Menu Assign for Study.
2. Select the measurement target mode.
3. Select the target measurement name.
4. Select [Del.].

(3) Editing the Display Order

Procedure

1. Display the Display Menu Assign for Study.
2. Select the measurement target mode.
3. Select the target measurement name from the Menu list.
4. Select [Up] or [Down].
→ The display order is changed.

4.4.4 Report Display Block Settings: Combined Report Display

Set the composition and display order of blocks to present in reports.

Procedure

1. Display Combined Report Display for the set Study.
2. On the right side of the location you want to change, select [▼].
3. Select the report block to set.
To make no settings (leave blank)
Select highest blank space in the list.
4. Repeat steps 2 and 3 to set the composition and display order for the report display.

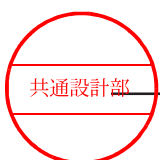
4.4.5 Operational Guide Message Settings: Other

Set the display of operational guide messages (assist messages) during measurement.

Settings	Options	Description
Operational guide message display	ON	Displays operational guide messages during measurement.
	OFF	Does not display operational guide messages during measurement.

4.5 SW Assignment

Assign measurement functions you want to assign as shortcuts to switches on the operation panel, keyboard, and touch panel.



SW Assignment is a setting that is common to all Studies within an application.
SW Assignment has the following presets.

Preset name	Assigned to	Settings
+Mark Key Assignment	[Caliper] key	Basic measurement menu
Hot Key Assignment	Keyboard (including function keys)	Basic measurements Application
Measure SW Assignment	Candidates for assignment to direct switches ([Measure 1], [Measure 2], [Measure 3], [Measure 4])	Measurements Reports Presets
Control Menu Assignment	Measurement control menu on the touch panel	Delete Switch trace method Switch application Shift result display location

4.5.1 Basic Measurement Menu Settings: +Mark Key Assignment

Use this function to assign the basic measurement menu to be displayed by pressing the [Caliper] key.

The basic measurement menu allows you to set up to 8 items for each mode.

Prior confirmation

NOTE: It cannot be set for each Study.

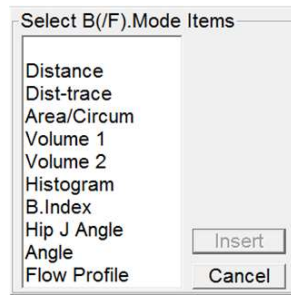
Procedure

1. Display +Mark Key Assignment.

2. Select the menu location.
→ The dialog box for setting the measurement menu appears.
3. Select measurement.



→ The selected basic measurement is highlighted.



4. Select [Insert].

4.5.2 Hot Key Settings: Hot Key Assignment

Use this function to assign basic measurements, application measurements, report, presets, and other functions to alphabet keys on the keyboard.

Procedure

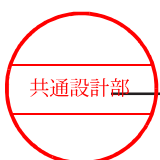
1. Display Hot Key Assignment.
2. Select the key you want to assign.
 - A dialog box is displayed.
3. Select a measurement function you want to assign as a shortcut.
 - a. Select [Appl.Meas], [Bas.Meas], or [Control] from Select Application.
 - b. When [Appl.Meas] or [Bas.Meas] is selected, select the mode from Select Target View Mode.
 - c. Select the measurement function from the Select Mode Items list.
 - The selected measurement is highlighted.
4. Select [Insert].

4.5.3 Presetting Direct Switches: Measure SW Assignment

Register in advance the measurement items to a direct switch.

Procedure

1. Display Measure SW Assignment.
2. Select a switch to change.
 - A dialog box is displayed.
3. Select the menu you want to assign.
 - a. Select [Appl.Meas], [Bas.Meas], or [Control] from Select Application.
 - b. When [Appl.Meas] or [Bas.Meas] is selected, select the mode from Select Target View Mode.
 - c. Select the measurement function from the Select Mode Items list.



→ The selected measurement is highlighted.

4. Select [Insert].

5. Assign as a direct switch.

NOTE: For details on registering direct switches, see the separate manual "Basic Operations".

4.5.4 Measurement Control Menu Settings: Control Menu Assignment

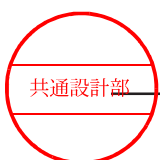
Use this function to set functions, that operate in parallel during execution of a measurement, in the measurement control menu on the touch panel.

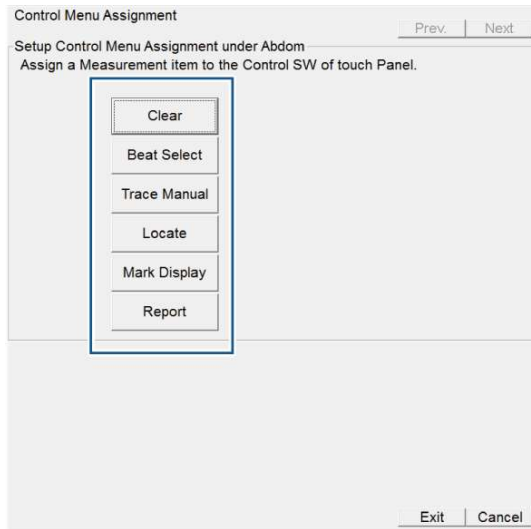
Measurement control menu items can be selected from the following functions.

Clear	Clears all measurement marks and measurement results.
Video Calib	Calibrates VCR playback measurements.
Trace Smooth	Smooths the Doppler trace line.
Trace Manual	Switches Doppler auto trace to manual trace.
Locate	Moves the location that displays measurement results.
Data Shift	Shifts the window that displays measurement results horizontally or vertically.
Beat Select	Select a heartbeat when multiple heartbeats are traced using the Doppler Auto Trace function.
Search	Activates the search function.
Graph	Displays an obstetric graph (only for gynecological measurements).
Report	Displays a report.
Send SR	Creates and sends SRs.
Mark Display	Select to display multiple caliper marks or display marks only during measurement.

Procedure


1. Display Control Menu Assignment.
2. Select the menu location.





3. Select the assigned menu from the **Select Control Items** list.
→ The selected menu is highlighted.
4. Select [Insert].

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