Resona A10S/Resona A20/Resona A20 Pro/Resona A20T/Resona A20S/Resona A Lumi/Resona A Super/Resona AR/ Eagus A20/Eagus A20S/Eagus A20T/ Resona A20W/Resona A18W/Resona A20 Exp/Resona A20 Premium/Resona A20 Elite/Resona A20 Plus/Resona A20G/Resona A20Q/Resona A Elite/ Resona A MV/Eagus A20W/Eagus A18W/ Eagus A20 Exp/Eagus A20 Elite/Eagus A20G/Eagus A20 Navi/Eagus A20Q/ Eagus A Lumi/Eagus A Elite/Eagus AR/ Crius A20/Crius A20 Exp

Diagnostic Ultrasound System

Operator's Manual

[Basic Volume]

Auto Calculation

This function is used to trace the spectrum and calculate the PW/CW mode image parameters. The results are displayed in the results window.

In real-time scanning, the results displayed are derived from the calculation of the latest cardiac cycle.

In the freeze and cine status, the results displayed are calculated from the current selected area.

- Auto Calc Param: To set the calculation results to display.
- Auto Calc Cycle: To set the heart cycle number for auto-calculation.
- Auto Calc Loop: Freeze the image, turn the knob under [Auto Calc Loop] on the touch screen.
  - Rotate the knob clockwise to select the next loop.
  - Rotate the knob anticlockwise to select the last loop.
- Trace Area: To set the trace area of the Doppler wave in the spectrum map, applicable for auto calculation, V Max and V Mean display.
- Trace Smooth: To set the smooth level when tracing.
- Trace Sensitivity: This function is used to set the sensitivity of tracing in the spectrum.

Invert

This function is used to set the display manner of spectrum.

NOTE:

It is available only for linear probes.

Speed

This function is used to set the scan speed of PW mode imaging.

Changing the speed makes it easier to identify the cardiac cycles and to detect more details.

T/F Res

Adjusts for a balance between time resolution and spatial resolution.

WF (Wall Filter)

To display the image accurately, it adjusts the cut-off used in the wall filter, and filters out the flow noise which is produced by vessel wall vibration. The real-time value is displayed in the image parameter area.

Tint Map

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

Gray Map

Selects among post processing map curves to optimize grayscale images.

Display Format

Sets the display proportion of PW mode image and B mode image.

Duplex/Triplex

This function is used to set if B image or B+Color image (Power) is scanned synchronously.

HPRF

HPRF mode is used when detected velocities exceed the processing capabilities of the currently selected PW Doppler scale or when the selected anatomical site is too deep for the selective PW Doppler scale.

HPRF enhances the range of detecting high-velocity flow.

Baseline

Refers to the area where the velocity in zero in the spectrum. The map changes after being edited.

To optimize the image, adjust baseline according to the actual situation to change the range of flow velocity.

Angle

This function is used to adjust the angle between Doppler vector and flow to make the velocity more accurate.

The real-time adjusting angle value is displayed in the image parameter area.

Quick Angle

Adjusts the angle faster in increments of 60°, and the real-time value of which is displayed in the image parameter area.

The function is available in real-time imaging, freeze or cine review status.

Dynamic Range (Dyn Ra.)

The dynamic range conveys the information that being transformed from echo intensity to gray scale.

With the contrast range, dynamic range, information displayed more, the noise increases more as well.

Volume

Adjusts the output audio in spectrum Doppler.

Utilizing the output audio helps to identify the feature and status of flow.

Steer

Adjusts the scan angle in PW mode, so as to change the angle between the transmitting beam and flow direction.

Obtain more information with immobility of the probe.

Values of steer angles vary with the probe.

NOTE:

Steer is available only for linear probes.

6.11 TDI (Tissue Doppler Imaging)

TDI mode is intended to provide information of low-velocity and high-amplitude tissue motion, specifically for cardiac movement.

There are 4 types of TDI mode available:

- Tissue Velocity Imaging (TVI): This imaging mode is used to detect tissue movement with direction and speed information. Generally the warm color indicates the movement towards the transducer, while the cool color indicates the movement away from the transducer.

- Tissue Energy Imaging (TEI): This imaging mode reflects the status of cardiac movement by providing the energy information, the larger the energy is, the brighter the color becomes.
- Tissue Velocity Doppler Mode (TVD): This imaging mode provides direction and speed information of the tissue.
- Tissue Velocity M Mode (TVM): This function assists to observe the cardiac motion through a direct angle.

6.11.1 TDI Mode Image Scanning

Perform the following procedure:

1. Tap <TDI> on the screen or the user-defined <TDI> key to enter the TDI mode.
   - In B or B+Color mode: to enter TVI Mode, parameters of TVI mode will be displayed on the touch screen.
   - In Power mode: to enter TEI Mode, parameters of TEI mode will be displayed on the touch screen.
   - PW mode: Tap <TDI> on the screen or the user-defined <TDI> key and then press <PW> or <Update> to enter TVD. The parameters of TVD are displayed on the touch screen.
   - M mode: Tap <TDI> on the screen or the user-defined <TDI> key and then press <M> or <Update> to enter TVM. The parameters of TVM are displayed on the touch screen.
   - In TDI mode, press <C>, <PD>, <M> or <PW> to switch among the modes.
2. Adjust the image parameters to obtain optimized images.
3. Tap <TDI> on the screen or the user-defined <TDI> key to exit from TDI mode and enter general imaging modes.

   Or, press <B> on the control panel to return to B mode.

6.11.2 TDI Mode Image Parameters

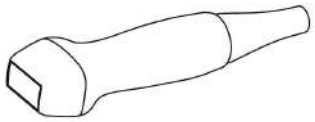
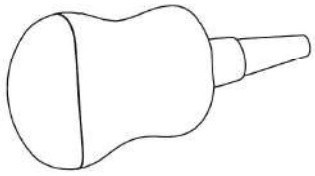
In TDI mode scan, the image parameter area in the right corner of the screen will show the real-time parameter values as follows:

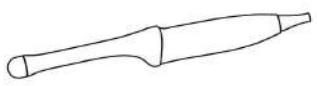
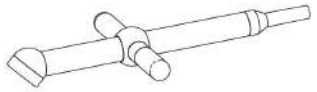
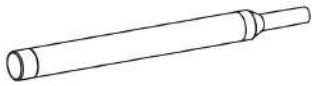
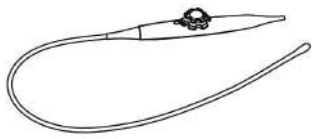
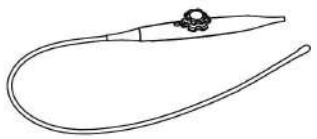
- TVI/TEI

Items	Meaning
F	Frequency
G	Gain
WF	Color Wall Filter
PRF	Pulse Repetition Frequency PRF

- TVD

Items	Meaning
F	Frequency
G	Gain
WF	WF (Wall Filter)
PRF	Pulse Repetition Frequency PRF
SVD	SV depth

Model	Region Applied	Intended Use	Imaging Mode	Probe Figure
P8-2U	Body surface	Abdominal, Cardiac, Nerve, Pediatric, Vascular, Cephalic	B, M, PW, CW, Color, Power, iScape View, Free Xros M, Free Xros CM, Color M, Smart 3D, Tissue Doppler Imaging (Cardiac), Stress Echo (Cardiac), Tissue Tracking QA (Cardiac)	
SV10-2U	Trans-vaginal, Trans-rectal	Obstetrics, Gynecology, Urology	B, M, PW, Color, Power, iScape View, Free Xros M, Color M, Smart 3D, Contrast Imaging (Gynecology, Urology), Strain Elastography (Gynecology, Urology), STE (Gynecology, Urology), STQ (Gynecology, Urology), Ultrasound Fusion Imaging (Urology)	
ELC13-4U	Trans-vaginal, Trans-rectal	Urology, Gynecology	B, M, PW, Color, Power, iScape View, Free Xros M, Color M, Smart 3D, Contrast Imaging, Strain Elastography, STE, STQ, Ultrasound Fusion Imaging(Urology)	
SD8-1U	Body surface	Obstetrics, Gynecology, Abdominal	B, M, PW, Color, Power, iScape View, Free Xros M, Color M, 3D/4D, FH Tissue Tracking QA (Obstetrics), Contrast Imaging (Gynecology, Abdominal), Volume CEUS (Gynecology, Abdominal)	

Model	Region Applied	Intended Use	Imaging Mode	Probe Figure
DE10-3WU	Trans-vaginal, Trans-rectal	Obstetrics, Gynecology, Urology	B, M, PW, Color, Power, iScape View, Free Xros M, Color M, 3D/4D, Contrast Imaging (Gynecology, Urology), Volume CEUS (Gynecology, Urology), Strain Elastography (Gynecology, Urology), STE (Gynecology, Urology), STQ (Gynecology, Urology)	
CW2s	Body surface	Cardiac, Cephalic	CW	
CW5s	Body surface	Vascular	CW	
P8-2Ts	Trans-esophageal	Cardiac	B, M, PW, CW, Color, Power, Free Xros M, Free Xros CM, Color M, Tissue Doppler Imaging (Cardiac)	
P8-2TU	Trans-esophageal	Cardiac	B, M, PW, CW, Color, Power, Free Xros M, Free Xros CM, Color M, Tissue Doppler Imaging(Cardiac)	

17.1.1 Probe Functions by Part

The basic structures and corresponding functions of probes are basically the same; take the following probe as an example.