

**Resona I9 Series/Imagyn I9 Series/
Resona I8W Series/Neuwa I8W Series/
Resona I8 Easi Series**

Diagnostic Ultrasound System

Operator's Manual

[Advanced Volume]

5. MV E Amp, MV A Amp and MV A-C Interval values are acquired by fixing A point and C point.
6. You can end measurement in advance by pressing <Set> twice on point E, F, A or C.

5.3.2 AutoEF

Measure the diastole and diastole planes automatically.

TIP:

- Only cardiac exam mode supports this function.
- Recommend to connect ECG, capture the cine of standard A2C and A4C planes, and select cardiac cycles which have the clear plane of the cardiac muscle and less interference to perform AutoEF measure.

Measure items:

Item	Description
LVLd (A2C)	Left ventricular long-axis length at end diastole (A2C)
LVAd (A2C)	Left ventricular long-axis area at end diastole (A2C)
LVLs (A2C)	Left ventricular long-axis length at end systole (A2C)
LVA s (A2C)	Left ventricular long-axis area at end systole (A2C)
LVLd (A4C)	Left ventricular long-axis length at end diastole (A4C)
LVAd (A4C)	Left ventricular long-axis area at end diastole (A4C)
LVLs (A4C)	Left ventricular long-axis length at end systole (A4C)
LVA s (A4C)	Left ventricular long-axis area at end systole (A4C)

Measurement Result:

Item	Description
EDV (A2C/A4C/BP)	End-diastolic Left Ventricular Volume
EDV Index (A2C/A4C/BP)	End-diastolic Left Ventricular Volume Index
ESV (A2C/A4C/BP)	End-systolic Left Ventricular Volume
ESV Index A2C/A4C/BP)	End-systolic Left Ventricular Volume Index
SV (A2C/A4C/BP)	Stroke Volume
SI (A2C/A4C/BP)	SV Index
EF (A2C/A4C/BP)	Ejection Fraction
CO (A2C/A4C/BP)	Cardiac Output
CI (A2C/A4C/BP)	Cardiac output index

Perform the following procedure:

1. Select the [AutoEF] in the measurement menu.
2. In apical two-chamber view, measure the following parameters:
 - Left ventricular endocardium at end-diastolic, the EDV (A2C), SV(A2C), EF(A2C) is obtained automatically.

- Left ventricular endocardium at end-systolic, the ESV (A2C), SV(A2C), EF(A2C) is obtained automatically.
3. In apical four-chamber view, measure the following parameters:
- Left ventricular endocardium at end-diastolic, the EDV (A4C), SV(A4C), EF(A4C) is obtained automatically.
 - Left ventricular endocardium at end-systolic, the ESV (A4C), SV(A4C), EF(A4C) is obtained automatically.
- If the height and weight have already been entered, the SI, EDV Index and ESV Index are calculated.
4. Select the HR source: ECG or entered.
- ECG obtains the HR automatically. If ECG is not connected, it should start HR on the menu.
- The CO and CI are calculated automatically using the entered height and weight values.

5.4 Study Tool Operations

5.4.1 Left Ventricular Function

This group of studies estimates the Left Ventricular (LV) diastolic and systolic capabilities using a series of clinical indices measured on the B or M image. As well as calculating the left ventricular volume and end diastole and end systole, they may calculate the following indices (not all indices are calculated in every study, see the Study Results table for each study for reference).

Result	Description	Formulae
SV	Stroke Volume	$SV(ml) = EDV(ml) - ESV(ml)$
CO	Cardiac Output	$CO(l/min) = SV(ml) \times HR(bpm) / 1000$
EF	Ejection Fraction	$EF(\text{No unit}) = SV(ml) / EDV(ml)$
SI	SV Index	$SI(\text{No unit}) = SV(ml) / \text{Body Surface Area (m}^2\text{)}$
CI	Cardiac output in-dex	$CI(\text{No unit}) = CO(l/min) / \text{Body Surface Area (m}^2\text{)}$
FS	Fractional Short-ening	$FS(\text{No unit}) = (LVIDd(cm) - LVIDs[cm]) / LVIDd(cm)$
MVCF	Mean Velocity of Circumferential Fiber Shortening	$MVCF = (LVIDd(cm) - LVIDs(cm)) / (LVIDd(cm) \times ET(s))$

NOTE:

The HR value entered manually should be within the range 1~999.

S-P Ellipse

Study Items:

Tools	Descriptions	Operations
LVLd apical	Left Ventricular Long-axis Length at End-diastole in apical view	Distance in 2D General measurements
LVA d apical	Left Ventricular Long-axis Area at End-diastole in apical view	Area in 2D General Measurements