VINNO

VINNO S200 VET

Data sheet

1.43.0

VINNO
vision in innovation

Contents

VINNO S200VET

1.System Overview

1.1 “VLucid+”Platform

• VINNO S200VET brings a confident diagnostic experience with the extraordinary processing power of our breakthrough VLucid+ platform, to deliver superior image quality,
thanks to its exceptional intelligent architecture
• The new generation VLucid+ platform is capable of processing multiple data streams simultaneously
• The new 12 bit, low noise, digital circuitry, with up to 280db dynamic range has improved 2D performance and increased Doppler sensitivity
• Directional-enhanced information compiling for more tissue detail and reduction of angle-generated artifacts
• New generation adaptive image processing for noise and artifact reduction that improves tissue presentation and edge definition
• Multi-processors allow simultaneous mode changes and support for advanced system functionality

1.2 Applications

• Abdomen
• Cardiology
• Superficial

1.3 Imaging features

• Harmonic
• VFusion
• VSpeckle
• VTissue
• Needle enhancement（Optional）
• PView for panoramic imaging （Optional）
• T View for trapezoidal imaging
• Full screen imaging
• RF based Zoom
• CFI function
• Ultra Fast CF imaging
• VLuminous Flow
• Power Doppler imaging
• Pulse wave Doppler imaging
• Continuous wave Doppler（Optional）
• Tissue Doppler (TD)（Optional）
• Tissue Velocity Imaging (TVI)（Optional）
• M mode
• Color M mode
• Multi Angle M-mode
• Curved M mode（Optional）
• B/Color steer
• Duplex 2D/CF
• Triplex 2D/CF/PW Doppler
• Auto EF（Optional）
• VCQ（Optional）
• Velp Function（Optional）
• Smart Touch Zoom
• Easy Comparative Function

1.4 Standard features

• Up to 1500 seconds standard cine storage
• 250G-SSD
• Integrated black/white thermal video printer slot
• Animal information database
• Image archive on hard drive
• Quick store to USB memory stick
• Quick store to hard drive
• Wireless networking for easy data sharing, storage and printing
• Bluetooth for image data transfer
• Image data transfer directly by E-Mail with network access
• Up-to-date connectivity and data management solutions, wireless , LAN, Bluetooth, E-Mail, integrated database

- DICOM compatibility(optional)
- Vreport(optional)
- VWork
- 1 ECG port
- 10 TGC slides
- 1 HD Video
- 1 VGA, 1 S-video
- 1 Speaker interface
- 1 LAN interface

1.5 Language support

• Software: Chinese, English, German, Greek, Malay,Portuguese, Romanian, Spanish, Swedish, Polish, Russian, Uighur, Italian, Czech, Hungarian

• Keyboard input: Chinese, English, German, Greek, Malay,Portuguese, Romanian, Spanish, Swedish, Polish, Norwegian, Danish, Finnish, French, Russian, Italian, Czech, Cambodia, Polski, Ukrainian

2.Ergonomics

- Unique human oriented design for comfort and convenience
- Easy access DVD media drive(optional)
- 3 transducer holders
- Automatic warming gel bottle holders(optional)
- Alphabetic keyboard(optional)
- Simple, easy and effective cable management structure

2.1 Keyboard

- Highly sensitive 13.3 inch technology touch panel
- Resolution: 1920*1080 pixels
- Intuitive, configurable and touchable interactive operation interface
- Ergonomic hard keys for general ultrasound operations
- 10 TGC slides, functionality at any depth
- Backlight keys

2.2 Image display screen

- 21.5 inch high resolution LED technology, pixel resolution: 1920x1080
- Brightness, contrast and color temperature adjustment
- View angle: -178° ~ 178°
- Number of color: 16.7M
- Multifunctional support arm design
- Independent tilt and swivel adjustment
- Swivel range(triple joint):±350degrees
- Tilt range: 0-100 degrees

2.3 Wheels

• Diameter: 125mm

• Front castor (2 ea): Total lock

Rear castor (2 ea): Total lock

2.4 Touch gestures

• Swipe down/up: display/remove projected image on touch screen

• Swipe horizontally: page up/down or review images/cine loops one by one

• Swipe from left edge to right: display hidden menu on projected image.

• Image parameter adjustment

• Measurement on projected image on touch screen

• Zoom in/out the projected

Image on touch screen

2.5 System boot-up

• Boot-up from shut-down: about 70 sec
• Shut-down: about 10 sec

2.6 Comments

• Supports text input and arrow
• Support freehand marking on touch screen
• Adjustable text size and arrow size
• Supports home position
• Covers various application
• User customizable

2.7 Bodymark

• More than 215 bodymarks for versatile application
• User customizable

2.8 Peripherals

• B&W thermal video printer: Sony UP-D898MD(optional)
• Color thermal video printer: Sony UP-D25MD (optional)

2.9 Dimensions and Weight

• Height: 1390mm
• Width: 580mm
• Depth: 750mm
• Net Weight: 56kg

2.10 Electrical Power

• Voltage: 100-240V AC
• Frequency: 50/60Hz
• Power: Max. 500VA
• Support built in battery (optional)

2 pieces is a group, use in groups, can choose 1/2/3/4 groups

2.11 Operating Environment

• Ambient temperature: 10-40°C
• Relative humidity: 30-75%
• Atmospheric pressure: 540hPa-1060hPa

2.12 Storage & Transportation Environment

• Ambient temperature: -5-50°C
• Relative humidity: 10%-80% (no condensation)
• Atmospheric pressure:540hPa-1060hPa

3.Transducers

3.1 Transducer Technology

• Xcen technology for wideband frequency
• Pure wave technology for high resolution imaging

3.2 Transducer types

• Convex array
• Linear array
• Phase array
• Micro-convex array

3.3 Transducer selection

- Selectable multiple applications
- Edit exist application preset
- Edit user defined preset
- Rename preset
- Return to factory preset

3.3.1 F2-5C Broadband Curved Array Probe

- Field of view: 59 degree
- Convex radius: 60mm
- Application: abdomen, Repro， Ovary
- Frequency range: 2-6.5MHz
- Center frequency: 4 MHz
- Physical footprint: 72mm x 27mm
- Transducer elements:128
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes
- Reusable biopsy guide available

3.3.2 G3-9M Broadband Micro Convex Array Probe

- Application: abdomen, cardiac
- Field of view: 103 degree
- Convex radius: 15mm
- Center frequency: 6.5 MHz
- Frequency range: 5-11MHz
- Physical footprint: 34.2mm×28.7mm

3.3.3 F4-12L Broadband Linear Array Probe

- Fine pitch, high resolution
- Applications: ABD，Tendon（Deep），Eye
- Aperture size: 38.4mm
- Frequency range: 6-16MHz
- Center frequency: 7.5MHz
- Physical footprint: 52mm x 25mm
- Transducer elements:128
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

3.3.4 G1-4P Phased Array Probe

- Applications: cardiac, abdomen
- Field of view 90 degree
- Aperture size: 18mm
- Frequency range: 2-5Mhz
- Physical Footprint:
- 34.5mm x 28.5mm
- Center frequency: 2.8MHz
- Transducer elements:64
- Pulsed wave Doppler,
- continuous wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes
- Reusable biopsy guide available

3.3.5 G3-10P Phased Array Probe

- Application: Cardiac
- Aperture size: 10.2 mm
- Field of view: 90 degree
- Frequency range: 3-10Mhz
- Physical Footprint:
- 33mm x 33mm
- Center frequency: 4.7MHz
- Transducer elements:64
- Pulsed wave Doppler, color
- Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

3.3.6 G4-12P Phased Array Probe

- Application: Cardiac

- Aperture size: 9.7 mm
- Field of view: 90 degree
- Frequency range: 5-12MHz
- Physical Footprint:
- 22mm x 20mm
- Center frequency: 7.5MHz
- Transducer elements: 96
- Pulsed wave Doppler,continuous wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

3.3.7 G4-12LV broadband linear array probe

• Applications: Repro
• Aperture size: 48.8mm
• Frequency range: 6-14MHz
• Physical Footprint:
100mm x 18mmx 15mm
• Center frequency: 7.5MHz
• Transducer elements:128
• Pulsed wave Doppler, color Doppler, power Doppler, harmonic
• Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

4.Advanced Imaging controls

4.1 VFusion

• Available on all transducers and for 2D
• Operate in conjunction with VSpeckle, harmonic imaging

4.2 VSpeckle

• Available on all transducers and for 2D
• Virtually eliminate speckle noise artifact and dynamically enhances tissue margins
• Selectable multiple levels of speckle noise reduction and smoothing
• Operates in conjunction with VFusion and harmonic imaging

4.3 VTissue

• Advanced imaging processing to adapt to the speed of the ultrasound variation in different tissue
• Improved detail resolution and conspicuity of lesions
• Presentable sound and speed in different applications
• One touch operation to ease diagnosis
• Better detection in diffuse lesions of organs

4.4 Next generation VLucid+ image processing

• Available on all imaging transducers in 2D grayscale modes
• Virtually eliminates speckle noise artifact and dynamically enhance tissue edge
• Operates with other real-time processing algorithms

5. Imaging modes

5.1 2D Mode

5.1.1 B Image

• Pre-defined ATGC (adaptive temporal gain compensation) curves optimized for onsistently excellent imaging
• Multi frequency: ≥ 5 levels, probe dependent
• Select between 1 to 8 transmit focal zones
• VFusion ：≥ 7steps
• VSpeckle ：≥ 6 steps
• Steer 3 steps
• Depth 26 levels，1 -36cm
• Frame rate (Depends on the probe)
• B acoustic output: 10-100%，5% / step
• TGC：10 slides on control pannel
• SGC：8 ponds on touch pannel
• Dynamic range: 30-280 dB ，2dB/step
• Gain: 0-100%，1% / step
• 2D line density ≥5 steps
• Persistence: ≥ 8steps
• Rotation: 0°,90°,180°,270°
• Gray Map：≥ 32types
• Tint Map：≥ 24types
• Gray filter: ≥ 7 steps
• Tissue Boost
• EdgeEnhance (improve detail information and contrast): ≥ 6steps
• Smooth ≥ 11steps
• VSharpen ≥ 8steps
• 2D optimization: on/off
• Centerline: on/off
• L/R flip and U/D flip: on/off
• Display format：Single, Dual, Quad
• TI heat index: TIB, TIS, TIC
• Zoom(up to 10×) 24 steps，1×/step
• Harmonic imaging both tissue and phase inversion
• Duplex and Triplex mode（including 2D/CF/PW）
• Post-processing in frozen mode includes gain, map, Dynamic range, VSpeckle and chroma

5.1.2 Needle enhancement (Optional)

• Beam deflection technology is used to make the needle perpendicular to the sound beam, improving the display of the needle
• Steer：3 angles（Depends on the probe）
• Auto Needle enhancement available （Depends on the probe）Optional

5.1.3 TView

• Expand view of scanning
• Available on all transducers

5.1.4 PView (Optional)

• Real time extended field of view composite imaging
• Ability to back up and realign the image during acquisition
• Full zoom, cineloop review and image rotation capabilities
• Length：Max 16cm
• CF PView available

5.2 M mode

5.2.1 M Image

•Selectable display format prospective or retrospective (V2/3, V1/3, V1/2, H1/2, H3/4, full screen)
• M acoustic output: 10-100%，5% / step
• Dynamic range：108db-128db, 2db/step
• Gain: 0-100%，1% / step
• Gray Map: ≥ 32types
• Tint Map: ≥ 24types
• Gray filter：≥ 7steps
• Vsharpen: ≥ 6steps
• Color M mode：available
• Selectable sweeping rates ≥ 13steps
• Post-processing in frozen mode includes gain, map, baseline and chroma

5.2.2 Multi-angle M Image (Optional)

• Sample on moving tissue from multi-angle
• Present wall motion spectrum based on tissue moving

5.2.3 Multi-line Angular

M-Image(Optional)

- Up to 4 lines
- Color MLAM is available

5.2.4 Curved M Image(Optional)

- Draw the route of the sample line freely and obtain the corresponding anatomical M-mode . This might be helpful to obtain myocardial wall motion
- Color curved M mode is available

5.3 Color Doppler mode

5.3.1 Color Image

- Frequency：≥ 5steps, depend on probes
- Max velocity (Depends on the probe)
- PRF(Depends on the probe)
- Steering on linear array transducers 5 steps
- Max frame rate (Depends on the probe)
- Acoustic power：5%-100%，5% / step
- Color gain：0-100%，1% / step
- ROI size or position：adjustable
- Baseline：0%-100%，3/step
- Wall filter(Depends on the probe)
- Packet size：6-16，≥ 9 steps
- Smooth ：≥ 7steps
- Color Map：≥ 33types
- Line density：≥ 7 steps
- Flash reduction：≥ 6 steps
- Persistence：≥ 20 steps
- Sensitivity：≥ 6 steps
- Transparency：≥ 6steps
- Color level (Depends on the probe)
- Reverse function: on/off
- Live Track：Automatically adapts the color box position and steer
- FULL screen imaging to larger image size
- L/R flip and U/D flip: on/off
- Color flow M mode display for tissue motion and flow velocity
- Zoom
- Duplex and Triplex mode（including 2D/CF/PW）
- Post-processing in frozen mode includes map, baseline, invert
- VFlow available
- Sync B/C width

5.3.2 Power Doppler Image

- Frequency：≥ 5steps, depend on probes
- PRF(Depends on the probe)
- Steering on linear array transducers 5 steps
- Max frame rate (Depends on the probe)
- Acoustic power：5%-100%，5% / step
- Color gain：0-100%，1% / step
- ROI size or position：adjustable
- Wall filter(Depends on the probe)
- Packet size：8-30
- Smooth ：≥ 7steps
- Color Map：≥ 24types
- Line density：≥ 7 steps
- Flash reduction：≥ 6 steps
- Persistence：≥ 20 steps
- Sensitivity：≥ 6 steps
- Transparency：≥ 6steps
- Color level (Depends on the probe)
- Reverse function: on/off
- FULL screen imaging to larger image size
- L/R flip and U/D flip: on/off
- Color flow M mode display for tissue motion and flow velocity
- Zoom
- Duplex and Triplex mode（including 2D/CF/PW）
- Post-processing in frozen mode includes map, baseline, invert and chroma

5.3.3 VLuminous Flow Image

- Visualize 2D blood flow in 3D to improve spatial resolution, dynamic information display, and continuity of fine flow display

5.4 Spectrum Doppler

5.4.1 Pulse Doppler Image（PW）

- Selectable display format prospective or retrospective (V2/3, V1/3, V1/2,

H1/2, H3/4, full screen)
- PW velocity:Max3700 cm/s, Min 1cm/s
- Sample volume: 0.5mm-28mm(PW only)
- Baseline: 5%-95%, 2% / step
- Steering on linear array transducers 5 steps
- PRF(Depends on the probe)
- PW acoustic output: 5%-100%，5% / step
- PW gain：0-100%，1% / step
- Selectable sweep speeds: ≥ 13 steps
- Gray filter: ≥ 6steps
- Sensitivity: ≥ 21steps
- Audio Volume: 0-20
- Angle correction with automatic velocity scale adjustment
- Normal, invert display around horizontal zero line
- Auto optimization: on/off
- Invert: on/off
- Angle correct：±80°，1° / step
- Spectrum Optimize: ≥ 28steps
- Gray map: ≥ 13types
- Tint map: ≥ 11types
- Cardiac cycle: 1-5
- Trace direction: above, below, all
- Trace type: max, mean, max and mean
- Post-processing in frozen mode includes map, baseline, invert and chroma
- High PRF capability in all modes including duplex and triplex

5.5 CW mode(Optional)

- Cardiac sector array transducer only
- Selectable display format prospective or retrospective (V2/3, V1/3, V1/2, H1/2, H3/4, full screen)
- Baseline: 5%-95%, 2% / step
- PRF(Depends on the probe)
- Acoustic output: 5%-100%，5% / step
- Gain：0-100%，1% / step
- Selectable sweep speeds: ≥ 13steps
- Gray filter: ≥ 6steps
- Audio Volume: 0-20
- Invert: on/off
- Spectrum Optimize: ≥ 28steps
- Gray map: ≥ 13types
- Tint map: ≥ 11types
- Cardiac cycle: 1-5
- Trace direction: above, below, all
- Post-processing in frozen mode includes map, baseline, invert and chroma

5.6 Tissue Doppler Imaging (TD) (Optional)

- Cardiac sector array transducer only
- Angle correct: ±80°
- Sample volume: 0.5mm-10mm(PW only)
- Baseline: 5%-95%, 2% / step
- Acoustic output: 5%-100%，5% / step
- Gray filter: ≥ 6 steps
- Audio Volume: 0-20
- Spectrum Optimize: ≥ 20steps
- Gray map: ≥ 13types
- Tint map: ≥ 11types
- Cardiac cycle: 1-5

5.7 Tissue Velocity Imaging (TVI) (Optional)

- Color codes the velocities in tissue
- Present tissue color imaging by using Doppler principle
- This color image is overlaid onto the 2D image
- Captures low flow but high amplitude signals associated with wall motion

5.8 Elastography imaging (Optional)

- Shows the spatial distribution of tissue elasticity properties in a region of interest to estimate the strain before and after tissue distortion caused by external force
- The strain estimation is scaled by color to have smooth distribution display
- Have quality index to indicate if there is proper external force
- Sensitivity: 0-10
- Transparency: ≥13steps

- Smooth: ≥7steps
- Line density: ≥5steps
- Persistence: ≥20steps
- Map: EI0
- Display format：Single, Dual, Quad

5.9 ECG (Optional)

- Support ECG function, can be used as an auxiliary cardiac scan

5.10 PView (Optional)

- Real time extended field of view composite imaging
- Ability to back up and realign the image during acquisition
- Full zoom, cineloop review and image rotation capabilities

5.11 TView

- Expand view of scanning
- Available on all transducers

6. Intelligent workflow

6.1 Customized Auto Workflow (VWork)

- Support user-defined settings for commonly used scanning processes, simplifying the operation steps of user scanning
- When the current scan is completed, it automatically proceeds to the next scan step without additional manual effort
- Customizable actions include creating a new animal, switching probes, switching modes, entering a body marker, entering annotation, entering measurement, saving, entering a report, and ending a scan

6.2 Customize the user interface

- Support for customizing commonly used parameters and measurements in the user interface
- Support to customize the order of user interface parameters and measurement items

6.3 VReport (Optional)

- Report editing tool, which is convenient for users to edit the report content and display layout independently
- Editable report templates include: abdomen, blood vessels, heart

6.4 VCQ（Cardiac）(Optional)

- Provide a reference for the deviation of normal values for cardiac measurement data, and assist users to make better diagnoses

6.5 VCQ（Abdomen） (Optional)

- Provide a reference for the deviation of normal values for abdominal measurement data, and assist users to make better diagnoses

6.6 Velp Functions (Optional)

- Automatically recognizes 5 basal slice images of a conventional echocardiogram
- Support automatic measurement and calculation of LA/AO at the end of systole
- Automatic placement of M-type sampling lines is supported
- Automatic measurement in HAR mode, M mode, and PW mode is supported

7. System Feature

7.1 Display modes

• Simultaneous capability
• 2D/PW/CW
• 2D/CF or PDI
• 2D/M
• Dual, 2D/2D
• Dual, 2D/2D+CF or PDI
• Dual, duplex and Triplex
• Duplex and Triplex mode
• Time line display
• Independent dual 2D/PW or CW
• Timed based sweep update mode

7.2 Display Annotation

• Institution/hospital name
• Date: 3 types selectable, Year-Month-Day, Day-Month-Year, Month-Day-Year
• Time: 2 types selectable, 24hours and 12 hours
•Attending
• animal name, owner, name
• animal identification: 30 characters
• VINNO image symbol: Ginkgo leaf
• Power output index
• MI: mechanical index
• TIS: thermal index soft tissue
• TIC: thermal index cranial (Bone)
• TIB: thermal index bone
• Probe orientation marker: coincide with a probe orientation marking on the probe
• Gray/color bar
• Measurement result window
• Probe type
• Application name
• Image depth
• Imaging parameters by mode
• 2D/M mode: acoustic power output, gain, frequency, frame rate, dynamic range
• Color mode: color acoustic power output, color gain, color flow frequency, PRF, wall filter
• PW/CW mode: Doppler acoustic power output, Doppler gain, Doppler frequency, PRF, wall filter, sample depth
• Scanline Gain Compensation(SGC) with 8 slides adjustment
• Focus zone marker

• Body pattern
• PW and CW scale markers: time/speed
• M scale markers: time/depth, time
• System measurement display
• System message display
• Biopsy guide line
• Heart rate

7.3 Simple User Operation Interface

• Simple user interface and easy workflow, allows one step on probe & application switch, and intuitive user parameter control

7.4 Cineloop

• Acquisition, storage in memory and display of up to 30000 frames, 1500 seconds long of 2D, color and PW/CW images for review
• Avaliable to decide StartFrame and EndFrame
• Frame by frame manual cine loop review or auto playback with variable speed:
400%, 200%, 100%, 60%, 50%,40%, 20%
• Frame compare: displays one cine in dual format and allows frame by frame compare side by side
• Acquisition, storage and replay of Doppler audio

7.5 Quick save feature

• The system provides quick save function through USB stick, internal/external HDD, DVD during or after exam
• Configurable saving file format, VRD (VINNO Raw Data), DICOM, PNG,BMP,JPG , MP4 and AVI

7.6 Physio (Optional)

• One 3-lead ECG input
• Gain, sweep rate and display position controls
• Automatic heart rate calculation and display
• Fault condition display

7.7 Archive

• animal data input which include animal ID, name, birth date, sex, exam physician, quality check, exam operator
• Physical data such as weight, height
• animal exam management
• animal exam images storage and management
• Import VRD format data into the system from outside media, such as USB stick, external HDD, DVD
• Export animal data into outside Medias

7.8 Report

• Automatically pull animal data into the report
• Automatically load measurement worksheet into the report
• Pull related exams' images into the report
• Write comments in the report
• Print report through network or local printer

7.9 Connectivity

• Standard connectivity features
• Local print to on-board or off-board video printers through USB port
• Page report print
• Image export to removable media (DVD, external HDD, USB stick)
• Ethernet Network Connection
• Cable connection
• Wireless connection: need wireless routing adaptor
• Network linkage
• Image export to network storage servers*
• DICOM export and retrieve *
• Integrated DVDRW
• Support standard DVD media
• Data storage formats include VRD, DICOM, JPEG,BMP,PNG, AVI
• JPEG,BMP,PNG,VRD and DICOM images stored in disc can be recalled on the VINNO system
• PNG and AVI images can be played on normal computers
• On-board animal exam storage
• Direct digital storage of static image or cineloop images to internal hard disk drives
• Fully integrated user interface

7.10 Probes/application

• Selectable multiple applications
• Edit exist application preset
• Edit user defined preset
• Rename preset
• Return to factory preset
• Quick save user defined parameters in related application

7.11 Safety Conformance

• Regulatory Notice:
This device is tested to meet all applicable requirements in relevant. According to 93/42 EEC, it is class IIa medical device.
• Conformity to Standards:
• IEC 60601-1 : 2012 Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
• IEC 60601-1-2:2007 Electromagnetic compatibility - Requirements and tests
• IEC 60601-1-6:2010 Usability
• IEC 60601-2-37:2007 Medical electrical equipment - Particular requirements for the safety of ultrasonic medical diagnostic and monitoring equipment
• IEC 61157:2007

Declaration of acoustic output parameters

• ISO 10993-1:2009

Biological evaluation of medical devices

•IEC 62304:2006 Medical device software –Software life cycle processes

• IEC 62366:2007 Medical devices - Application of usability engineering to medical devices

•Council Directive 93/42/EEC on Medical Device

• WEEE according to 2012/19/EU

• RoHS according to 2011/65/EU

8. Measurement and Analysis

8.1 Measurement in different modes

8.1.1 Generic Measurement in 2D mode

- Depth
- Distance
- Perimeter
  - Length and width
  - Ellipse method
  - Polygon method
  - Spline method
  - Tracing method
- Volume
  - Single line method
  - Dual line method
  - Triple line method
  - Single ellipse method
  - Single ellipse and single line method
- Angle
- Stenosis
  - Diameter method
  - Square meter method
- A and B ratio
  - Diameter ratio
  - Square meter ratio

8.1.2 Generic Measurement in CFM mode

- CFVP
  - point
  - profile

8.1.3 Generic Measurement in M mode

- Depth
- Distance
- Time
- Speed
- Heart rate
- Stenosis
- A and B ratio
  - Diameter ratio
  - Time ratio
  - Speed ratioGeneric

8.1.4 Measurement in PW mode

- Speed (include PV (Peak Velocity))
- Time (include AT (Accelerate Time))
- Acceleration
- ED and PS ratio
- A and B ratio (A/B ratio)
  - Speed ratio
  - Time ratio
  - Acceleration ratio
- FLOWVOL (Flow Volume)
- MaxPG (maximum pressure gradient)
- MeanPG (Mean pressure gradient)
- SV (Stroke Volume)
  - Each volume diameter
  - cardiac
  - Time mean speed in each stroke

volume
  - Cardiac output
- Heart rate
- SV(LVOT)/SV(RVOT)

8.2 Measurement in different applications

8.2.1 Abdominal Measurement

- General abdomen
- Difficult abdomen
- Kidney
- Renal vessel
- Abdominal trauma
- 8.2.2 Small Part Measurement
- Thyroid
- Breast
- Testis
- Musculoskeletal
- Extremity joint
- Nerve block

8.2.3 Urology Measurement

- Bladder
- Prostate
- Renal
- Kidney and ureter

8.2.4 Cardiac Measurement

- General
- LV
- MV
- Ao
- AV
- LA
- RV
- TV
- PV
- RA
- System

8.2.5 Auto EF (Optional)

- Auto EF is a tool for calculating the ejection farction.
- Tracing the endocardium in apical four-chamber view and apical
- two-chamber view.
- The volume is calculated using Simpson’s Method
- The biplane ejection fraction can be
- measure it out automatically
- Depth
- Distance
- ernet Network Connection
- Cable connection
- Wireless connection: need wireless routing adaptor
- Network linkage
- Image export to network storage servers(optional)
- DICOM export and retrieve(optional)
- Support multiple DICOM server configuration
- Mobile data transfer solution by
- Blue tooth(Optional)
- email(Optional)
- Hot point connection
- VCloud (Optional)
- Integrated DVDRW
- Support standard DVD
- Data storage formatinclude VRD, DICOM, JPEG,BMP,PNG, AVI,JPEG,BMP,PNG,VRD

- DICOM images stored in disc can be recalled on the VINNO system PNG and AVI images can be played on normal computers

VINNO Technology (Changsha) Co., Ltd.

VINNO is focusing on producing premium diagnostic ultrasound development to provide customer clinical value through Continuous Innovation， Excellent Performance and Accessible Solutions.

Thanks you for your interest in VINNO

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VINNO is focusing on producing premium diagnostic ultrasound development to provide customer clinical value through Continuous Innovation， Excellent Performance and Accessible Solutions.

Thanks you for your interest in VINNO

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