

# VINNO<sup>8</sup>

## Ultrasound System Specifications

The premium performance of the full functional Portable VINNO 8 provides a fast and easy diagnosis by:

- Ultra-premium contrast and resolution imaging benefited from the first RF platform of the world
- All ranges of features, functions and probes
- Ease of use and ergonomic design



## System Overview

### Architecture

- The revolutionary RF platform, **The First In The World**, allows for more accurate information. This platform transfers all RF data for computing without any information loss. It has a much better advantage in detail imaging than current advanced platforms.
- Thanks to the RF platform, it allows the development of many RF-based processing algorithms, which have ultra-premium contrast and resolution imaging
- This unique platform is capable of processing multiple data streams simultaneously
- World-class Up to 23MHz imaging performance
- Directional-enhanced information compiling for more tissue detail and reduction of angle-generated artifacts
- Next generation adaptive image processing for noise and artifact reduction that improves tissue presentation and edge definition

- Fully independent, triplex multiple mode operation for easy in Doppler procedures
- Multi-processors allow simultaneous mode changes and support for advanced system functionality
- World-class design to be thinner and lighter
- First in class to introduce capacity touch panel in portable ultrasound system to simplify workflow and customized workflow possibility
- Less 20 sec boot up time for easy mobile ability

### Applications

- Abdomen
- Obstetric
- Gynecology
- Cardiology
- Urology
- Vascular
- TCD
- Small Parts
- Pediatrics
- Intra-operative

## Imaging features

- 2D grayscale imaging
- Harmonic imaging both in tissue harmonic and pulse inversion harmonic technologies
- VFusion, directional-enhanced information compounding
- VSpeckle I&I, specialized and adaptive imaging processing to remove speckle noise artifacts and enhance tissue edge for clarity and accuracy
- VTissue, the advanced adaptive image processing to compensate for sound and speed variation in different tissue
- Auto imaging optimization
- Easy Comparative Function to compare previous exam
- Color M-mode(option)\*
- Color Doppler imaging
- Power Doppler imaging
- Pulse wave Doppler imaging
- Simultaneous 2D and M mode
- Duplex 2D/PW Doppler
- Triplex 2D/Color/PW Doppler
- High PRF pulsed wave Doppler
- Continuous wave Doppler
- Zoom
- FULL screen imaging to enlarge imaging size
- Dual real time imaging without compromising imaging size
- PView for panoramic imaging (Optional)\*
- TView for trapezoidal imaging
- Free 3D
- 3D imaging
- 3D/4D HQR (High Quality rendering) (Optional)\*
- Spatio Temporal Image Correlation (STIC) (Optional)\*

- Real-time grayscale 4D
- Tomographic display (MCUT)
- Three leads ECG function(option) \*
- Tissue Doppler (TD) mode
- Tissue Velocity Imaging (TVI) mode\*
- Tissue Velocity M mode (TVM)(option)\*
- Multi-angle M mode (option)\*
- Auto IMT function
- Auto NT\*
- Smart 3D Volume Calculation (option) \*
- Inversion mode
- Magic cut
- Smart touch panel 3D/4D operation (option)\*
- Free view
- Elastic Imaging(EI) (option)\*
- Contrast Imaging (option)\*

## Standard features

- Up to 25Mhz high frequency in system platform. Up to 22MHz's probes are supported
- RF platform and RF data processing
- Up to 1000 seconds cine storage
- 250GB SSD quick boot up and storage
- Patient information database
- Image archive on hard drive
- Quick store to USB memory stick
- Quick store to hard drive
- Report package
- Quick print to B/W and color thermal video printer
- Network storage and printing
- Full measurement and analysis package
- Real time auto wave Doppler track and calculations
- Vascular calculations
- Cardiac calculations

- OB calculations and tables
- Gynecological calculations
- Urological calculations
- Renal calculations
- Volume calculations
- Wireless networking for easy data sharing, storage and printing\*(optional)
- Up-to-date connectivity and data management solutions, wireless , LAN, integrated database\*(optional)
- Capability to send data to mobile by mail and blue tooth\*(optional)
- Total mobile medical solution for remote data transfer and diagnostic
- DICOM compatibility\*(optional)
- 2USB ports
- 6 TGC slides
- Average 4 multiple adjustable frequency in every probe and mode
- Up to 512 line density

### **Ergonomics**

- Unique human oriented design for comfort and convenience
- 15-inch high resolution flat panel display with nearly infinite positioning adjustments
- Easy to carry by integrated handle
- Full integrated probe to reduce overall space
- Integrated touchable alphabetic keyboard
- Integrated capacity touch panel to easy and simplify workflow
- Cart support up to 150mm up/down operation panel\*(optional)
- USB DVDRW \*(optional)

### **Keyboard**

- Highly sensitive 8 inch capacity touch panel
- Intuitive, configurable and touchable interactive operation interface
- Ergonomic hard keys for general ultrasound operations
- 6 TGC slides, functionality at any depth
- Backlight keys

### **Image display screen**

- 15 inch high resolution IPS, LED technology, pixel resolution
- Big angle tilting capability

### **Peripherals**

- B&W thermal video printer: Sony UP-D897MD (optional)
- Color thermal video printer: Sony UP-D25MD (optional)
- Memory stick (optional)

### **Dimensions and Weight**

- Length: 387mm
- Width: 340mm
- Depth: 72mm
- Weight: without accessories approx. 3.8kg

### **Electrical Power**

- Voltage: 100-240V AC
- Frequency: 50/60Hz
- Power: Max.170VA

## Transducers

### Transducer Technology

- Xcen technology for wideband frequency
- Pure wave technology for high resolution imaging
- Unique and high technical Xcen probe connector to adapt all different type of VINNO product models

### Transducer types

- Convex array
- Linear array
- Phase array
- 4D probe
- Endocavity probe
- Micro-convex array

### Transducer selection

- Electronic switching of transducers
- User customizable imaging presets for each transducer and application
- Automatic dynamic receiving focus in all transducers
- Multiple adjustable transmit focal zone, up to 8 focal zoom

### G2-5C Broadband Curved Array

- Field of view: 72 degree
- Convex radius: 50mm
- Application: abdomen, OB/Gyn, urology, pediatric
- Frequency range: 1.4 -5.6MHz
- 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

### D3-6C broadband curved array volume probe

- Field of view: 78 degree
- Convex radius: 40mm
- Application: abdomen, OB/Gyn, urology
- Frequency range: 1.9-7MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic, 3D/4D grayscale and 3D color modes
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

### D3-6CX broadband curved array volume probe

- Field of view: 68 degree
- Convex radius: 40mm
- Application: abdomen, OB/Gyn, urology
- Frequency range: 1.9-7MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic, 3D/4D grayscale, 3D color
- Multi-imaging frequency setting in 2D, 3D/4D, Harmonic, color Doppler and Wave Doppler modes

### F2-5CE Broadband Curved Array

- Field of view: 60 degree
- Convex radius: 60mm
- Application: abdomen, OB/Gyn, urology, pediatric
- Frequency range: 1.4 -5.6MHz
- 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

**G4-9M broadband micro convex array**

- Field of view: 138 degree
- Convex radius: 12mm
- Application: pediatric, abdomen, cardiac
- Frequency range: 3 - 10MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**G4-9E broadband micro convex endocavity array**

- Field of view: 180 degree
- Convex radius: 9.6mm
- Application: Ob/Gyn, urology
- Frequency range: 3 - 10MHz
- 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

**F4-9E broadband micro convex endocavity array**

- Field of view: 150 degree
- Convex radius: 10mm
- Application: Ob/Gyn, urology
- Frequency range: 3 - 10MHz
- 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

**D4-9E broadband micro convex 4D endocavity array**

- Field of view: 125 degree
- Convex radius: 10mm
- Application: Ob/Gyn, urology
- Frequency range: 3 - 10MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic, 3D/4D grayscale, 3D color
- Multi-imaging frequency setting in 2D, 3D/4D, Harmonic, color Doppler and Wave Doppler modes

**X4-12L broadband linear array**

- Fine pitch, high resolution
- Applications: vascular, small parts
- Frequency range: 4.5 -13MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**F4-12L broadband linear array**

- Fine pitch, high resolution
- Applications: vascular, small parts
- Frequency range: 4.5 -13MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**U5-15LE broadband linear array**

- Fine pitch, high resolution
- Applications: small parts, specially for breast, vascular
- Frequency range: 5 -15Mhz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**X10-23L broadband linear array**

- Fine pitch, high resolution
- Applications: small parts
- Frequency range: 10 -23MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**D3-6CE broadband curved array volume probe**

- Field of view: 68 degree
- Convex radius: 40mm
- Application: abdomen, OB/Gyn, urology
- Frequency range: 1.9 - 7MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic , 3D/4D grayscale, 3D color
- Multi-imaging frequency setting in 2D, 3D/4D, Harmonic, color Doppler and Wave Doppler modes

**I4-11T broadband linear array**

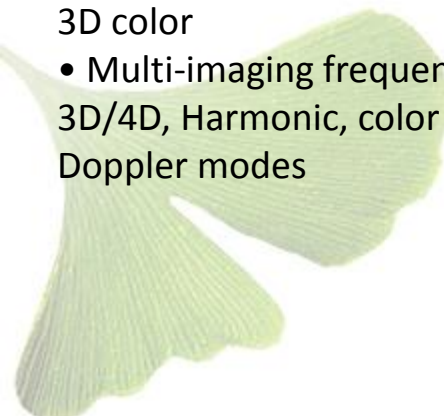
- Fine pitch, high resolution
- Frequency range: 4.2-11Mhz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**G1-4P phased array**

- Applications: cardiac, abdomen, Ob/Gyn, Urology
- Frequency range: 1.35-4.3Mhz
- Pulsed wave Doppler, continuous wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**S1-6P phased array**

- Single Crystal technology
- Applications: cardiac, abdomen, Ob/Gyn, Urology
- Frequency range: 1.9-7Mhz
- Pulsed wave Doppler, continuous wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes



**I7-18L broadband linear array (Hock stick)**

- Fine pitch, high resolution
- Applications: vascular, small parts, Hock stick
- Frequency range: 6.5 -18MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**X6-16L broadband linear array**

- Fine pitch, high resolution
- Applications: vascular, small parts
- Frequency range: 6.5 -18MHz
- Pulsed wave Doppler, color Doppler, power Doppler, harmonic
- Multi-imaging frequency setting in 2D, Harmonic, color Doppler and Wave Doppler modes

**Advanced Imaging controls****VFusion**

- Available on all transducers and for 2D, 3D/4D
- Up to 5 levels of directional imaging fusion to enrich information
- Operate in conjunction with VSpeckle, harmonic imaging

**VSpeckle**

- Available on all transducers and for 2D, 3D/4D
- 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

**VTissue**

- Special imaging processing to adapt to the speed of the ultrasound variation in different tissue
- Improved conspicuity of lesions, such as stone and tendon

**3D/4D**

- 3D/4D rotation
- Grayscale imaging controls
- Selectable rendering approaches
- Unique high quality rendering algorithm
- Selectable gray maps
- Multi slide cutting
- Cineloop 3D
- Review volume



**SRV (Super Resolution Volume)**

- Extreme contrast and spatial resolution in thin volume
- Small volume sweep angle
- High volume rate
- Visual able the tissue information in a thick slice
- Better detection in diffuse lesions of organs

**3D/4D HQR (High Quality Rendering) (Optional)\***

- Amazing high image quality
- Extreme realistic rendering images
- Similar operation as normal rendering

**Spatio-Temporal Image Correlation (STIC) (Optional)\***

- Visualize the fetal heart or an artery
- One complete heart cycle represented
- Using 3D static acquisition

**Tissue Doppler (TD)**

- Present wall motion spectrum by using Doppler principle
- Provide wall motion direction and velocity information

**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

**Inversion mode**

- This render mode is used to display anechoic structures such as vessels
- It invert the gray values of the rendered image, such as black image information become white and vice versa

**Magic Cut**

- Ability to edit images, make possible to cut away structure obstructing the view in the ROI
- Several cutting methods available

**Smart Touch 3D/4D Operation(Optional)**

- Fully utilize touch panel possibility for easy operation, such as rotation 3D rendering image, move ROI, create line by finger

**Free View**

- Provide any plane view to visualize the internal tissue information
- Improve the contrast resolution to facilitate the detection of diffuse lesions in organs



## Advanced Imaging controls (cont.)

### Tissue Velocity M mode(TVM) \*

- Color codes the velocities in tissue
- Present wall motion spectrum based on tissue moving
- This color image is overlaid onto the 2D image
- Captures low flow but high amplitude signals associated with wall motion

### Multi-angle M mode \*

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

### Auto NT (Nuchal Translucency ) measurement\*

- Automatically detect Nuchal Translucency in interest box
- Automatically report thickness result of NT

### Auto IMT (Intima-Media Thickness) measurement

- Automatically detect intima media thickness in interest box
- Automatically report the result of IMT
- Available in linear probe

### Elastic Imaging(EI) \*

- use the probe to press tissue artificially
- color codes the elasticity in tissue
- This color image is overlaid onto the 2D image

## Next generation RF-based 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

## Imaging modes

### 2D Imaging

- Pre-defined ATGC (adaptive temporal gain compensation) curves optimized for consistently excellent imaging
- B/M acoustic output: 0-100%
- Depth: able to adjust from 1 to 36cm
- Select between 1 to 8 transmit focal zones
- Reverse function: on/off
- VFusion function
- VSpeckle function
- Harmonic imaging both tissue harmonic and phase inversion
- Cineloop image review
- Selectable 2D line density
- Dual imaging with independent cineloop
- 256(8 bit) gray level
- Up to 8 focus zone adjustable
- Multiple color maps with chroma imaging
- FULL screen imaging to larger image size
- Multi frequency: probe dependent
- Gray filter: 7 steps
- Persistence: 8steps

- Selectable image angles, probe dependent
- Gain: 0-100%
- Dynamic range: 30-230 db
- VSharpen to enhance edge contrast
- Smooth to improve spatial resolution

### Harmonic Imaging

- Supports both tissue harmonic and phase inversion imaging (transducer and frequency dependence)
- Second harmonic processing to reduce artifacts and improve image clarity
- Maximize detail resolution and enhance contrast
- Available on all imaging transducers
- Extends high performance imaging capabilities to all patient body types

### M mode

- Selectable sweeping rates
- Time marks: 0.025 – 0.5 second
- Selectable display format prospective or retrospective (1/3-2/3, 1/2-1/2, 2/3-1/3, side by side 1/2-1/2, side by side 1/3-2/3, full screen)
- Chroma colorization with multiple color maps
- Cineloop review for retrospective analysis of M-mode data
- 256 gray levels

### Color Doppler mode

- Available on all imaging transducers
- Automatically adapts transmit and receive bandwidth processing based on the color box position

- Cineloop review with full playback control
- Steering on linear array transducers
- Selectable in baseline, line density, flash reduction, persistence, maps, frequency, PRF, wall filter, packet size, color level, sensitivity, focus position, acoustic power, and smooth
- Color gain
- Region of interest
- Baseline invert
- Simultaneous mode during PW mode
- Smoothing
- Wall filter
- Zoom

### Power Doppler mode

- High sensitive mode for small vessel visualization
- Available on all transducers
- Cineloop review
- Multiple color maps
- Individual controls for gain
- Selectable baseline, line density, flash reduction, persistence, maps, frequency, PRF, wall filter, packet size, color level, sensitivity, focus position, acoustic power, and smooth
- Adjustable region of interest

### Pulsed Wave (PW) Doppler

- Ultra high resolution spectral FFT rate
- Angle correction with automatic velocity scale adjustment
- Normal, invert display around horizontal zero line
- Selectable gray filter, dynamic range, frequency, PRF, wall filter, baseline, angle correct, sample volume
- Selectable sweep speeds: 8 steps
- Maximum velocity range: 12m/s

- PW acoustic output: 0-100%
- Selectable low frequency signal filtering with adjustable wall filter settings
- Selectable grayscale curve for optimal display
- Selectable chroma colorization maps
- Selectable display format prospective or retrospective (1/3-2/3, 1/2-1/2, 2/3-1/3, side by side 1/2-1/2, side by side 1/3-2/3, full screen)
- Auto function to optimize spectral Doppler displ.
- Digitally enhanced stereo output
- 256 gray levels
- Post-processing in frozen mode includes map, baseline, invert and chroma
- Simultaneous or duplex mode of operation
- Simultaneous 2D, color Doppler, pulsed Doppler
- High PRF capability in all modes including duplex and triplex

### **Continuous Wave Doppler (CWD)**

- Cardiac sector array transducer only
- Maximum velocity range: 19m/sec

### **Pview\***

- 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
- User can measure distance and area
- Measurement can be made on individual frames during cineloop review

- Available on linear transducers

### **Tview**

- Expand view of scanning
- Available on linear transducers

### **Auto**

- Intelligent one button automatic optimization in 2D and Doppler modes
- Automatically adjust PRF and baseline in Doppler

## Touch Panel Interface

### 2D mode

- New patient
- BodyPattern
- Archive
- Probe&APP
- Comments
- End exam
- Sys setting
- Report
- PView
- Fullscreen
- L/R
- U/D
- Center line
- VTissue
- VSpeckle
- VFusion
- Gray Filter
- Persistence
- Display Format
- Image reference
- Maps
- Frequency
- Focus position
- Focus #
- Dynamic Range
- Line density
- VSharpen
- Biopsy
- Image angle
- Focus width
- Smooth
- Acoustic power

### M Mode

- New patient
- BodyPattern
- Archive
- Probe&APP
- Comments
- End exam
- Sys setting
- Report
- L/R format
- U/D format
- Maps
- Dynamic range
- Acoustic power
- Sweep speed
- Gray filter
- VSharpen
- ECG

### CF mode

- New patient
- BodyPattern
- Archive
- Probe&APP
- Comments
- End exam
- Sys setting
- Report
- Invert
- Full Screen
- L/R
- U/D
- Baseline
- Flash Reduction
- Line density
- Persistence
- Display format

- Image reference
- Maps
- Frequency
- PRF
- Wall filter
- Packet size
- Colorlevel
- Sensitivity
- Focus position
- Acoustic power
- Smooth

### **PW/CW mode**

- New patient
- BodyPattern
- Archive
- Probe&APP
- Comments
- End exam
- Sys setting
- Report
- Invert
- Triplex
- Display format
- Sweep speed
- Gray filter
- Dynamic range
- Trace sensitive
- Auto trace
- Mode/direction
- Maps
- Frequency
- PRF
- Wall filter
- Baseline
- Angle correct
- Sample volume
- Audio Volume
- Spectrum optimize

- Acoustic power

### **3D mode**

- Comments
- BodyPattern
- Back to B
- Start3D
- ROI shape
- Render
- Display format
- Image reference
- View
- Gray map
- VSpeckle
- Quality
- Threshold
- Transparency
- Volume angle
- Movement step (after data acquisition)
- HQ Light(after data acquisition)
- Rotation angle (after data acquisition)
- Rotation direction (after data acquisition)

### **4D mode**

- Comments
- Body Pattern
- Back to B
- Start 4D
- ROI shape
- Movement step
- Rotation direction
- Render
- Display format
- Image reference
- View
- Gray map
- VSpeckle

- Quality
- Threshold
- Transparency
- Volume angle

## System Feature

### 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
  - Quad display in 3D/4D application
  - 9 slice images display in 3D/4D

application

- Time line display
  - Independent dual 2D/PW or CW
  - Timed based sweep update mode

### Display annotation

- Institution/hospital name
- Date: 2 types selectable, YY/MM/DD, MM/DD/YY
- Time: 2 types selectable, 24hours and 12 hours
- Operator identification
- Patient name, first, last
- Patient identification: 30 characters
- Gestational age from LMP/EDC/GA/BBT
- 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
- 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

### Cineloop

- Acquisition, storage in memory and display of up to 1000 seconds long of 2D, color and PW/CW images for review

### Compare

- Compare live imaging with stored imaging.

### Quick save feature

- The system provides quick save function through USB stick, internal/external HDD during or after exam
- Configurable saving file format, VRD (VINNO Raw Data), DICOM ,JPEG and AVI

### Physio

- One 3-lead ECG input\*(Optional)
- Gain, sweep rate and display position controls
- Automatic heart rate calculation and display
- Fault condition display

### Archive

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

### Report

- Automatically pull patient 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

### 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 (external HDD, USB stick)
- Network linkage
  - Image export to network storage servers
  - DICOM export and retrieve \*(Optional)
- Mobile data transfer solution by
  - Blue tooth\*(Optional)
  - email\*(Optional)
  - Hot point connection
- Vcloud \* (Optional)
- DICOM workstation for remote diagnostic solution \*(Optional)
- DICOM, JPEG, AVI
  - VRD and DICOM images stored in disc can be recalled on the VINNO system
  - JPEG and AVI images can be played on normal computers
- On-board patient exam storage
  - Direct digital storage of static image or cineloop images to internal hard disk drives
- Fully integrated user interface

### 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

## 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 E3:2005 Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
  - IEC 60601-1-1:2000 Safety requirements for medical electrical systems
  - IEC 60601-1-2:2007 Electromagnetic compatibility - Requirements and tests
  - IEC 60601-1-4:2000 Programmable electrical medical Systems
  - IEC 60601-1-6:2010 Usability
  - IEC 60601-2-37:2005 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 62366:2007 Medical devices Application of usability engineering to medical devices
  - Council Directive 93/42/EEC on M.D.
  - Directive 2002/96/EC on Waste Electrical and Electronic Equipment
  - Directive 2006/42/EC on Machinery

## Measurement and Analysis

### Generic Measurement in 2D mode

- Depth
- Distance
- Perimeter
  - Length and width method
  - Ellipse method
  - Polygon method
  - Spline method
  - Tracing method
- Area
  - Length and width method
  - 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

### Generic Measurement in 2D mode

- CFV
  - point
  - profile



**Generic Measurement in M mode**

- Depth
- Distance
- Time
- Slope
- Heart rate
- Stenosis
- A and B ratio
  - Diameter ratio
  - Time ratio
  - Velocity ratio

**Generic Measurement in PW mode**

- Speed (include PV (Peak Velocity))
- Time (include AT (Accelerate Time))
- Acceleration
- PS (Peak Speed in systole period)
- ED (The speed in the end of diastole period)
- MD (Minimum speed in diastole period)
- TAMAX (maximum speed in time average)
- TAMEAN (mean speed in time average)
- TAMIN (minmum speed in time average)
- PI (Pulsatility Index)
- RI (Resistance Index)
- PS and ED ratio
- 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

**Abdominal Measurement**

- General abdomen
- Difficult abdomen
- Kidney
- Renal vessel
- Abdominal trauma

**Small Part Measurement**

- Thyroid
- Breast
- Testis
- Musculoskeletal
- Upper and lower extremity joint
- Nerve block

**Vessel Measurement**

- Carotid artery
- Upper artery
- Upper vein
- Lower artery
- Lower vein
- Vessel puncture
- Transcranial Doppler

**Gynecology Measurement**

- Uterus and Plevis
- Follicle

## Urology Measurement

- Bladder
- Prostate
- Renal
- Kidney and ureter
- Pelvic Floor dysfunction

## Pediatric Measurement

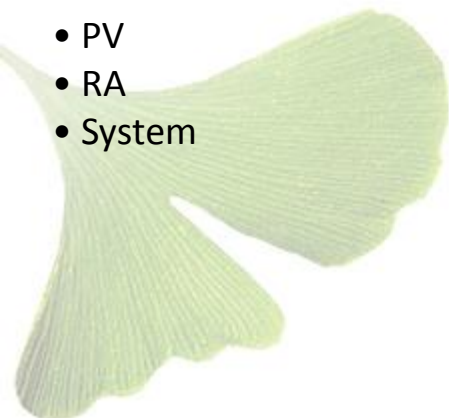
- Neonatal Head
- Neonatal Abdomen
- Pediatric Abdomen
- Pediatric Hip
- FAST

## Obstetrics Measurement

- OB Early
- OB Mid
- OB Late
- Fetal Heart

## Cardiac Measurement

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



## VINNO Technology (Suzhou) 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. You can contact us by phone and email (below) or contact our local representatives.

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