VU60 Series Color Doppler Ultrasound System Technical Specifications

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V6.0

The VU60 series color ultrasound is a professional veterinary color ultrasound device featuring unique industrial design, professional high-quality imaging, customizable workflow, and a variety of advanced application functions. With perfect integration of system software and hardware, combined with a classic appearance, it delivers a brand-new experience, enabling you to confidently address various clinical challenges and unlock more possibilities.

1 System Overview

1.1 Applications

· Abdominal
· Reproductive
· Cardiology
· Vascular
· Small Parts
· Musculoskeletal
· Nerve

1.2 Transducer Types

· Linear
· Convex
· Phased Array

1.3 Imaging Modes

· B mode
· 2B mode
· 4B mode
· M mode
· Anatomical M mode
· Color M mode
· Color mode
· PDI mode
· DPDI mode
· PW pulsed Doppler mode
· CW continuous Doppler mode
· Panoramic Imaging
· Elastography
· TDI Tissue Doppler

1.4 Standard Features

· 21.5-inch high-resolution display
· Raw data processing
· B mode
· Harmonic imaging
· Color Doppler imaging
· HR Flow high-resolution blood flow
· Micro-flow imaging
· Power Doppler / Directional Power Doppler
· M mode
· Anatomical M mode
· PW pulsed Doppler
· CW continuous wave Doppler
· TDI tissue Doppler
· Color M mode
· Spatial compounding imaging
· Frequency compounding imaging
· Speckle noise reduction
· Needle visualization enhancement
· Image Merge
· Auto optimization
· Auto Doppler automatic optimization
· Full screen zoom
· EFOV（Extended imaging）
· Steered imaging
· Measurement magnifier
· Customizable workflow

1.5 Optional Items

1.5.1 Hardware Options
· Lithium battery
1.5.2 Software Options
· Panoramic Imaging
· Elastography
· ECG function
· DICOM function
1.5.3 Peripheral Options
· Printer
· Wireless network adapter
· Bluetooth adapter
· Foot switch
· ECG 5-lead cable

1.6 Accessories

· Power cord

· Quick operation card
· Packing list
· Warranty card (including certificate of conformity)
· User manual

1.7 Supported Languages

· Software: Chinese, English, Spanish, French, Russian, German, Italian, Portuguese, Polish, Romanian
· Keyboard input: Chinese, English, Spanish, French, Russian, German, Italian, Portuguese, Polish, Romanian

2 Physical Specifications

2.1 Main Unit Specifications

· 21.5-inch high-resolution LCD display
· Width: 530mm
· Height: 1380mm
· Depth: 605mm
· Weight: 47.0 kg (standard configuration without battery), 53.0 kg (standard configuration with ECG without battery), 54 kg (tall version without battery)
· Transducer ports: 4 active ports (interchangeable and interoperable)
· Removable transducer holders: 4

2.2 Power Supply

· Mains voltage: 100V-240V~
· Mains frequency: 50Hz/60Hz
· Input power: 100-240V~, 4-2.3A
· Battery specification: 14.4V/6500mAh

2.3 Operating Environment

· Ambient temperature: 5°C ~ 40°C
· Relative humidity: 25% ~ 85%
· Atmospheric pressure: 800hPa ~ 1060hPa

2.4 Transport and Storage Environment

· Ambient temperature: -20°C ~ +55°C
· Relative humidity: 10% ~ 95% (non-condensing)
· Atmospheric pressure: 800hPa ~ 1060hPa

3 Human-Machine Interaction

3.1 Display

· 21.5-inch high-resolution LCD display
· Resolution: 1920×1080
· Tilt angle: 0-90°
· Swivel angle: ±75°

3.2 Touchscreen

· 13.3-inch high-resolution LCD display
· Resolution: 1920×1080
· Tilt adjustment range: 0-50°

3.3 Control Panel

· User-centric design for convenient operation
· Swivel angle: ±35°
· Panel key backlight: 0-9 adjustable
· Power switch
· Imaging mode keys
  · B, C, PDI, M, PW, CW
· Parameter shortcut keys
  · Depth
  · Focus position
  · Gain
  · Auto optimization
  · Angle/Steer
  · Zoom
· Function keys
  · Transducer/Exam switch
  · Patient information
  · Report
  · End exam
  · Clear
  · Cursor
  · Application measurement key
  · General measurement key
  · Refresh key
  · Confirm key
  · Workstation
  · Settings
  · QSave custom parameter preset
  · Body marker
  · Arrow
  · Text

· FZoom
· Dual-frame
· 10 user-defined keys
· Q1-Q8
· Save1/Save2
· 8-segment TGC sliders
· Trackball
· Text keyboard
· Key tone and trackball sensitivity adjustable

3.4 On-Screen Information*

· Information area
· ZONCARE logo
· Device model
· Hospital name
· Operator
· Animal information (animal name, animal ID, gender, age or date of birth)
· Examination date
· Examination time
· Transducer model
· Exam mode
· Multi-function menu area (displays some imaging parameter settings during scanning; shows corresponding information when entering text annotation/arrow annotation/body marker/measurement functions)
· Image area
· Ultrasound image
· Transducer marker
· Lateral scale
· Depth
· Focus
· Grayscale bar/Color bar
· Cine progress bar
· Measurement result box
· Text/Arrow/Body marker
· Prompt bar
· Acoustic output power
· Mechanical index (MI)
· Soft tissue thermal index (TIS)
· Bone thermal index (TIB)
· Cranial bone thermal index (TIC)
· Image parameter area
· Clipboard
· Thumbnails
· Send
· Delete
· Page up/down
· Layout switch
· Status bar
· Network connection status
· Input method
· Storage status
· Recycle bin
· Task manager
· Battery level
· Power supply status
· Others

3.5 System Power On/Off

· System cold start time: approx. 70 seconds
· Shutdown time: approx. 10 seconds
· System sleep
· Screen saver: Off, 1, 10, 30, 60 min

***Not all items in this section are covered here; please refer to the user manual for details.**

4 Imaging Parameters

4.1 Overview

· Digital beamformer
· Multi-channel parallel signal processing technology
· Digital dynamic focusing throughout
· Digital variable aperture and dynamic apodization
· A/D: 14bit

4.2 B Mode

· Display modes
· Single-frame
· Dual-frame
· Quad-frame

· Image quality: Pen, Gen, Res, HPen, HPen-Gen, HGen, HRes
· Dynamic range: 30-240, step 5
· ZClear: 0-6, step 1 (speckle noise reduction)
· Frame correlation: 0-6, step 1
· Grayscale map: 1-10, step 1
· 2D grayscale: 256
· Chroma: 0-8, step 1
· Field of view: 8 levels
· EFOV: 3 levels
· Auto-Merge: On, Off
· Reverse up/down: On, Off
· Reverse left/right: On, Off
· Dual real-time
· SCI: 0-7, step 1
· Line density: Low, Medium, High, Ultra high
· Acoustic power: 1-20, step 1
· Image rotation: 0°, 90°, 180°, 270°
· Focus
  · Number of foci: 1-8 adjustable
  · Focus position: 15 positions
· FCI: 0, 1
· Tissue Specific Imaging(TSI): General, Muscle, Fat, Fluid
· Dual-frame
· Quad-frame
· Lateral scale
· Center line
· Center point
· TGC: 8 segments
· LGC: 10 segments
· Gain: 0-100, step 1
· Display depth: 420mm (convex)
· Steer: -16°-+16°, step 4° (linear transducer)
· Global zoom: 0.8-10.0, 17 levels
· Local magnification

4.3 M Mode

· Gain: 0-100, step 1
· Dynamic range: 30-180, step 5
· Sweep speed: 1-8, step 1
· Grayscale map: 1-10, step 1
· Chroma: 0-8, step 1
· Display format: V2:3, V3:2, V3:1, H2:3, FULL

4.4 Color Doppler Mode

· Display modes
  · Color single-frame
  · Color dual-frame
  · Color quad-frame
· B+C dual real-time
· Gain: 0-100, step 1
· Image quality: Pen, Gen, Res
· Scale (PRF): 0.2k-7.9k, 20 levels
· Wall filter: 8 levels
· Sensitivity: 1-4, step 1
· Persistence: 0-5, step 1
· Smoothing: 0-5, step 1
· Line density: Low, Medium, High, Ultra high
· Blood flow state: Low, Medium, High
· High-resolution blood flow: On, Off
· Color priority: 0-100, step 1
· Color invert: On, Off
· Velocity marker: On, Off
· B/C Align: On, Off
· Color hide: On, Off
· Color maps
  · V0-V10 (velocity type)
  · VV0-VV9 (velocity-variance type)
· Auto invert: On, Off (linear transducer)
· Baseline: 17 levels
· Steered sample box: -28° ~ 28°, step 7 (varies by transducer)

4.5 PDI Power Doppler Mode

· Display modes
  · Single-frame
  · Dual-frame
  · Quad-frame
· B+PDI dual real-time
· Gain: 0-100, step 1
· Image quality: Pen, Gen, Res

· Scale (PRF): 0.2k-7.9k, 20 levels
· Wall filter: 8 levels
· Sensitivity: 1-4, step 1
· Persistence: 0-5, step 1
· Smoothing: 0-5, step 1
· Line density: Low, Medium, High, Ultra high
· Blood flow state: Low, Medium, High
· High-resolution blood flow: On, Off
· Color priority: 0-100, step 1
· invert: On, Off
· Dynamic range: 10-70, step 5
· B/C Align: On, Off
· Color hide: On, Off
· Color maps
  · P0-P3 (energy type)
  · dP0-dP3 (directional energy type)

4.6 PW Pulsed Doppler Mode

· Gain: 0-100, step 1
· Baseline: 17 levels
· Image quality: Pen, Gen, Res
· Scale (PRF): 0.5k-16.0k, 20 levels
· Wall filter: 8 levels
· invert: On, Off
· Quick angle correction: -60°, 0°, 60°
· Angle correction: -89°~89°, step 5°
· Speed: 1-8, step 1
· Display format: V2:3, V3:2, V3:1, H2:3, FULL
· Auto invert: On, Off (linear transducer)
· Trace area: Upper, Lower, All
· SV: 0.5-80mm
· HPRF: On, Off
· Volume: On, Off
· Volume level: 0-100, step 1
· Dynamic range: 24-72, step 2
· Multi-sync: On, Off
· Chroma: 0-8, step 1
· Grayscale map: 1-10, step 1
· Time-frequency resolution: 1-5, step 1
· Auto calculation: On, Off
· Auto calculation parameters: AT, D/S, DT, ED, Flow (TAMAX), Flow (TAMEAN), HR, MD, MMPG, MPG, PI, PPG, PS, PV, RI, S/D, TAMAX, TAMEAN, VTI
· Auto calculation cycle: 1, 2, 3

4.7 CW Continuous Doppler Mode

· Gain: 0-100, step 1
· Baseline: 17 levels
· Image quality: Pen, Gen
· Scale (PRF): 1.0k-96.0k, 20 levels
· Wall filter: 8 levels
· invert: On, Off
· Speed: 1-8, step 1
· Quick angle correction: -60°, 0°, 60°
· Angle correction: -89°~89°, step 1°
· Display format: V2:3, V3:2, V3:1, H2:3, FULL
· Dynamic range: 24-72, step 2
· Time-frequency resolution: 1-5, step 1
· Volume level: 0-100, step 1
· Chroma: 0-8, step 1
· Grayscale map: 1-10, step 1
· Auto calculation: On, Off
· Auto calculation parameters: AT, D/S, DT, ED, Flow (TAMAX), Flow (TAMEAN), HR, MD, MMPG, MPG, PI, PPG, PS, PV, RI, S/D, TAMAX, TAMEAN, VTI
· Auto calculation cycle: 1, 2, 3

4.8 Linear Anatomical M Mode

· Supports A, B, C linear sampling lines
· Sampling line position: freely adjustable
· Sampling line orientation: 0-180° rotation
· Display format: V2:3, H2:3
· Grayscale map: 1-10, step 1
· Speed: 1-8, step 1
· Chroma: 0-8, step 1

4.9 Curved Anatomical M Mode

· Supports one curved sampling line
· Sampling point position: freely adjustable
· Supports edit, delete, and undo functions
· Display format: V2:3, H2:3

· Grayscale map: 1-10, step 1
· Speed: 1-8, step 1
· Chroma: 0-8, step 1

4.10 Color M Mode

· Same parameter adjustments as M mode

4.11 TDI Tissue Doppler Mode

· Tissue Doppler Velocity mode (TVI)
· Display modes
Single-frame
Dual-frame
Quad-frame
· B+TVI dual real-time
· B/C Align: On, Off
· Gain: 0-100, step 1
· Image quality: Pen, Gen, Res
· Scale (PRF): 0.2k-7.9k, 20 levels
· Baseline: 17 levels
· Wall filter: 8 levels
· Sensitivity: 1-4, step 1
· Persistence: 0-5, step 1
· Smoothing: 0-5, step 1
· Line density: Low, Medium, High, Ultra high
· Blood flow state: Low, Medium, High
· Color priority: 0-100, step 1
· invert: On, Off
· Color hide: On, Off
· Color map: V0-V9
· Acoustic power: 1-20, step 1
· Tissue Doppler Spectrum mode (TVD)
· Multi-sync: On, Off
· Display format: V2:3, V3:2, V3:1, H2:3, FULL
· Auto calculation: On, Off
· Auto calculation parameters: AT, D/S, DT, ED, Flow (TAMAX), Flow (TAMEAN), HR, MD, MMPG, MPG, PI, PPG, PS, PV, RI, S/D, TAMAX, TAMEAN, VTI
· HPRF: On, Off
· Gain: 0-100, step 1
· Image quality: Pen, Gen, Res
· SV: 0.5-80mm
· Scale (PRF): 0.5k-8.0k, 20 levels
· Speed: 1-8, step 1
· Baseline: 17 levels
· Chroma: 0-8, step 1
· Dynamic range: 24-72, step 2
· Trace area: Upper, Lower, All
· Wall filter: 0-7, step 1
· Quick angle correction: -60°, 0°, 60°
· Angle correction: -89°~89°, step 1°
· Auto calculation cycle: 1-3, step 1
· Time-frequency resolution: 1-5, step 1
· Grayscale map: 1-10, step 1
· Volume level: 0-100, step 1
· Acoustic power: 1-20, step 1
· Tissue Doppler Energy mode (TEI)
· Display modes
Dual-frame
Quad-frame
· B+TEI dual real-time
· B/C Align: On, Off
· Gain: 0-100, step 1
· Image quality: Pen, Gen, Res
· Scale: 0.2k-7.9k, 20 levels
· Wall filter: 8 levels
· Sensitivity: 1-4, step 1
· Persistence: 0-5, step 1
· Smoothing: 0-5, step 1
· Line density: Low, Medium, High, Ultra high
· Blood flow state: Low, Medium, High
· Dynamic range: 10-70, step 5
· Color priority: 0-100, step 1
· invert: On, Off
· Color hide: On, Off
· Color maps:
P0-P3 (energy type)
dP0-dP3 (directional energy type)
· Acoustic power: 1-20, step 1
· Tissue Doppler Color M mode (TVM)

· Display format: V2:3, V3:2, V3:1, H2:3, FULL
· Gain: 0-100, step 1
· Speed: 1-8, step 1
· Chroma: 0-8, step 1
· Dynamic range: 30-180, step 5
· Grayscale map: 1-10, step 1

***The above 4 TDI modes are available only with phased array transducers.**

4.12 Panoramic Imaging

· Supports B, Color, and PDI modes
· Supports acquisition and erasure
· Supports scan speed indication
· Supports cine playback of acquired images
· Supports re-acquisition
· Supports image size adjustment: Fit, Actual
· Zoom factor: 0.1-10
· Rotation angle: 0°-355°
· Image scale: On, Off
· Chroma: 0-8, step 1

4.13 Elastography

· Hardness color bar
· Compression curve
· Strain ratio measurement
· Persistence: 0-5, step 1
· Smoothing: 0-6, step 1
· Opacity: 0-10, step 1
· Map: 1-7, step 1
· invert
· Sync

***This mode is available only with linear and convex transducers.**

4.14 SCI

· Spatial compounding imaging
· 0-7 levels adjustable
· Paper clip test: >9 lines
· Not available with FCI or EFOV

***Not supported by phased array transducers.**

4.15 FCI

· Frequency compounding imaging
· 0-1 level adjustable
· Not available with harmonic imaging or SCI

4.16 AUTO

· One-key auto optimization
· Automatically optimizes parameters
· B mode: Gain, dynamic range, TGC
· C mode: Gain, baseline
· PW mode: Gain, scale, dynamic range, baseline

4.17 Magnification

· Supports local magnification
· Supports global magnification, zoom factor range: 0.8~10, 17 levels adjustable
· Supports FZoom full-screen magnification: magnifies the normal image area to full screen

4.18 Needle Guidance

· Needle calibration
· Single-line / Double-line
· Line type: Small, Medium, Large
· Supports needle calibration
· Position adjustable
· Angle adjustable

***Not supported by rectal transducers.**

5 Cine and Raw Data Processing

5.1 Cine

· Available in all modes
· Supports frame-by-frame manual playback and speed-adjustable auto playback
· Auto playback speed: ×1/10, ×1/5, ×1/4, ×1/3, ×1/2, ×1, ×2, ×3, OFF
· Select start frame
· Select end frame
· Jump to first frame
· Jump to last frame
· Reset
· Save
· Maximum 2D cine frames: 13218 frames
· Supports forward and backward storage with pre-settable time length
· Forward storage time: 1-120s
· Backward storage time: 1-480s

5.2 Raw Data Processing

- **B mode**
  - Gain
  - Dynamic range
  - ZClear
  - Grayscale map
  - Chroma
  - TGC
  - LGC
- **M mode**
  - Gain
  - Grayscale map
  - Dynamic range
  - Chroma
- **Color Doppler mode**
  - Gain
  - Smoothing
  - Color priority
  - Color map
  - Baseline
  - Color invert
  - Velocity marker
  - Color hide
- **PDI Power Doppler mode**
  - Gain
  - Smoothing
  - Color priority
  - Color map
  - Dynamic range
  - Color hide
- **PW Pulsed Doppler**
  - Gain
  - Speed
  - Baseline
  - Chroma
  - Dynamic range
  - Grayscale map
  - Quick angle correction
- **CW Continuous Doppler**
  - Same as PW Pulsed Doppler
- **Anatomical M mode**
  - Grayscale map
  - Chroma
- **TVI/TEI**
  - Gain
  - Smoothing
  - Color priority
  - Color map
  - Baseline
  - Color invert
  - Color hide
- **TVD**
  - Same as PW Pulsed Doppler
- **TVM**
  - Same as M mode
- **Panoramic Imaging**
  - Chroma
- **Elastography**
  - Smoothing
  - Opacity
  - Map

6 Annotation and Body Markers

6.1 Text Annotation

- Annotation languages: Chinese, English, Spanish, French, Russian, German, Italian, Portuguese, Polish, Romanian
- Annotation library: Selectable
- Font size: Large, Medium, Small
- Supports show/hide annotations
- Supports custom annotations

6.2 Arrow

- **Arrow size: Large, Medium, Small**
- **Arrow direction: 360° adjustable**
- **Supports show/hide arrows**

6.3 Body Markers

- Supports transducer marker with adjustable orientation
- Body marker position adjustable
- ≥35 body marker types

7 Measurements/Analysis and Reports*

7.1 General Measurements

- **2D mode:**
  - Distance (2D)
  - Trace
  - Ellipse
  - Angle
  - Volume (3-distance, Ellipse, Ellipse-distance)
  - Ratio (Distance, Trace, Ellipse, Spline, Cross-hair)
  - Spline
  - Cross-hair
  - Dual distance
  - Trace length
  - Spline length (Spline)
  - Parallel line
  - Depth
  - Color velocity
  - Strain ratio
  - IMT (Anterior wall)
  - IMT (Posterior wall)
  - Blood flow volume
  - Vascular area
- **M mode:**
  - Distance (M)
  - Heart rate (M)
  - Slope
  - Time (M)
  - Velocity
- **Doppler mode:**
  - PS/ED
  - Velocity
  - Heart rate (Doppler)
  - Time (Doppler)
  - Acceleration
  - D Trace
  - Velocity ratio
  - VTI ratio
  - Blood flow volume
  - Vascular area
  - TAMEAN
  - TAMAX

7.2 Clinical Application Measurement Packages

- **Abdominal**
  - **2D mode:**
    - Liver
    - Liver mass volume
    - Gastric wall thickness
    - Small intestinal wall thickness
    - Small intestinal mucosal layer
    - Small intestinal muscular layer
    - Large intestinal wall thickness
    - Adrenal long diameter
    - Adrenal thick diameter
    - Adrenal wide diameter
    - Adrenal volume
    - Adrenal mass volume
    - Gallbladder
    - Gallbladder long diameter
    - Gallbladder thick diameter
    - Gallbladder width
    - Gallbladder wall thickness
    - Gallstone
    - Common hepatic duct
    - Common bile duct
    - Portal vein diameter
    - Pancreas
    - Pancreatic duct
    - Pancreatic head
    - Pancreatic body
    - Pancreatic tail
    - Pancreas
    - Pancreatic mass volume
    - Kidney
    - Renal long diameter
    - Renal thick diameter
    - Renal wide diameter
    - Renal cortical thickness
    - Renal mass volume

· Spleen
· Splenic mass volume
· Abdominal aorta diameter
· Abdominal aortic bifurcation
· Iliac artery diameter
· Uterine long diameter
· Uterine anteroposterior diameter
· Uterine transverse diameter
· Uterine wall thickness
· Ovarian long diameter
· Ovarian anteroposterior diameter
· Ovarian wide diameter
· Ovarian volume
· Ovarian mass volume
· Iliac lymph node long diameter
· Iliac lymph node thick diameter
· Iliac lymph node wide diameter
· Iliac lymph node volume
· Mesenteric lymph node long diameter
· Mesenteric lymph node thick diameter
· Mesenteric lymph node wide diameter
· Mesenteric lymph node volume
· Hepatic lymph node long diameter
· Hepatic lymph node thick diameter
· Hepatic lymph node wide diameter
· Hepatic lymph node volume
· Prostate
· Prostate long diameter
· Prostate thick diameter
· Prostate wide diameter
· Prostate volume
· Prostate mass volume
· Seminal vesicle
· Seminal vesicle long diameter
· Seminal vesicle thick diameter
· Seminal vesicle wide diameter
· Bladder
· Pre-void bladder long diameter
· Pre-void bladder thick diameter
· Pre-void bladder wide diameter
· Post-void bladder long diameter
· Post-void bladder thick diameter
· Post-void bladder wide diameter
· Bladder wall thickness
· Bladder stone
· Bladder mass volume
· Ureter
· Ureteral wall thickness
· Ureteral stone
· Renal volume
· Renal pelvis
· Renal mass volume
· Renal stone
· **M mode:**
· Distance (M)
· Heart rate (M)
· Slope
· Velocity
· **Doppler mode:**
· Renal vessels
· Main renal artery
· Segmental artery
· Interlobar artery
· Arcuate artery
· Renal vein
· Abdominal arteries
· Abdominal aorta
· Celiac trunk
· Superior mesenteric artery
· Proper hepatic artery
· Common hepatic artery
· Splenic artery
· Abdominal veins
· Inferior vena cava
· Portal vein
· Left hepatic vein
· Middle hepatic vein
· Right hepatic vein
· Splenic vein
· Superior mesenteric vein
· **Reproductive**
· **2D mode**

· Feline HD
· Feline BD
· Canine CRL
· Canine GS
· Canine HD
· Canine BD
· Equine GS-H
· Equine GS-V
· Bovine CRL
· Bovine TD
· Bovine HD
· Ovine CRL
· Ovine BPD
· Body length
· **M mode:**
· Distance (M)
· Time (M)
· Slope
· **Doppler mode:**
· Umbilical artery
· Middle cerebral artery
· Fetal aorta
· Descending aorta
· Placental artery
· Ductus venosus
· **Cardiology**
· **2D mode:**
· Distance
· Ao/PA(2D)
· LA/Ao(2D)
· RVDd(2D)
· RVAWd(2D)
· IVSd(2D)
· LVIDd(2D)
· LVPWd(2D)
· IVSs(2D)
· LVIDs(2D)
· LVPWs(2D)
· LV Major
· LV Minor
· LA Major
· LA Minor
· LA Diam(2D)
· RV Major
· RV Minor
· RA Major
· RA Minor
· RPAD Index(2D)
· Area
· LV Area(d)
· LV Area(s)
· RV Area(d)
· RV Area(s)
· LA Area
· RA Area
· Volume & Myocardial mass
· LA Vol(A-L)
· LA Diam(LA Vol A-L)
· LAA(A2C)
· LAA(A4C)
· LA Vol(Simp)
· LA Vol(A2C)
· LA Vol(A4C)
· RA Vol(Simp)
· RA Vol(A4C)
· LV Mass(Cube-2D)
· IVSd(LV Mass Cube-2D)
· LVIDd(LV Mass Cube-2D)
· LVPWd(LV Mass Cube-2D)
· LV Mass(A-L)
· LVAd sax Epi(LV Mass A-L)
· LVAd sax Endo(LV Mass A-L)
· LVLd apical(LV Mass A-L)
· LV Mass(T-E)
· LVAd sax Epi(LV Mass T-E)
· LVAd sax Endo(LV Mass T-E)
· a
· d
· Vessels
· Ao Diam(2D)
· Ao Arch Diam(2D)
· Ao Asc Diam(2D)

· Ao Desc Diam(2D)
· LVOT Diam
· MPA Diam(2D)
· RVOT Diam
· CaVC Diam(Insp)
· CaVC Diam(Expir)
· Left ventricular function
· Simp SP(A4C)
· EDV(Simp SP-A4C)
· ESV(Simp SP-A4C)
· HR(Simp SP A4C)
· Simp SP(A2C)
· EDV(Simp SP-A2C)
· ESV(Simp SP-A2C)
· HR(Simp SP A2C)
· Simpson BP
· EDV(Simp BP-A2C)
· ESV(Simp BP-A2C)
· EDV(Simp BP-A4C)
· ESV(Simp BP-A4C)
· HR(Simp BP)
· Teichholz(2D)
· Diastole(Teich 2D)
· Systole(Teich 2D)
· HR(Teich 2D)
· Aortic valve
· AV Diam
· ACS(2D)
· AVA
· AVA(VTI)
· LVOT Diam
· LVOT VTI
· AV VTI
· AV HR
· PISA AR
· AR Rad
· AR Als Vel
· AR VTI
· CO(LVOT)
· LVOT Diam
· LVOT VTI
· AV HR
· Mitral valve
· MV Diam
· MVA
· MCS(2D)
· MV EPSS(2D)
· MVA(VTI)
· LVOT Diam
· LVOT VTI
· MV VTI
· PISA MR
· MR Rad
· MR Als Vel
· MR VTI
· Pulmonary valve
· PV Diam
· PISA PR
· PR Rad
· PR Als Vel
· PR VTI
· CO(RVOT)
· RVOT Diam
· RVOT VTI
· PV HR
· Tricuspid valve
· TV Diam
· TVA
· PISA TR
· TR Rad
· TR Als Vel
· TR VTI
· RVSP
· TR Vmax
· RAP
· PISA
· PISA MR
· MR Rad
· MR Als Vel
· MR VTI
· PISA AR
· PISA TR

· PISA PR
· Shunts
· VSD Diam
· ASD Diam
· PDA Diam
· PFO Diam
· **M mode:**
· Distance
· RVAWd(M)
· RVDd(M)
· IVSd(M)
· LVIDd(M)
· LVPWd(M)
· IVSs(M)
· LVIDs(M)
· LVPWs(M)
· LA/Ao(M)
· ACS(M)
· RVOT Diam
· RPAD Index(M)
· LA FS(M)
· Teichholz(M)
· Diastole(Teich M)
· Systole(Teich M)
· HR(Teich M)
· LV Mass(Cube-M)
· IVSd(LV Mass Cube-M)
· LVIDd(LV Mass Cube-M)
· LVPWd(LV Mass Cube-M)
· Time
· LVPEP(M)
· LVET(M)
· RVPEP(M)
· RVET(M)
· Volume & Myocardial mass
· Teichholz(M)
· Diastole(Teich M)
· Systole(Teich M)
· HR(Teich M)
· Cube(M)
· Diastole(Cube M)
· Systole(Cube M)
· HR(Cube M)
· Gibson(M)
· Diastole(Gibson M)
· Systole(Gibson M)
· HR(Gibson M)
· LV Mass(Cube-M)
· IVSd(LV Mass Cube-M)
· LVIDd(LV Mass Cube-M)
· LVPWd(LV Mass Cube-M)
· Aortic valve
· ACS(M)
· LVPEP(M)
· LVET(M)
· Mitral valve
· MV ALL
· MV DE
· MV E-F Slope
· MV EPSS(M)
· MV E Amp
· MV A Amp
· MV C-O dur
· LV Tei Index(M)
· MV C-O dur
· LVET(LV Tei Index-M)
· Pulmonary valve
· RVPEP(M)
· RVET(M)
· RVOT Diam
· TAPSE
· MAPSE
· LA/Ao(M)
· CaVC Diam(Expir M)
· CaVC Diam(Insp M)
· CrVC Diam(Expir M)
· CrVC Diam(Insp M)
· **Doppler mode:**
· Aortic valve
· AV Vmax
· AV VTI
· AV HR

· AVA(VTI)
· LVOT Diam
· LVOT VTI
· AV VTI
· AV AccT
· LVOT Vmax
· LVOT VTI
· CO(LVOT)
· LVOT Diam
· LVOT VTI
· AV HR
· LVET(D)
· LVPEP(D)
· AR Vmax
· AR VTI
· AR DecT
· AR PHT
· PISA AR
· AR Rad
· AR Als Vel
· AR VTI
· Mitral valve
· MV E Vel
· MV A Vel
· MV E Dur
· MV A Dur
· MV Ea(medial)
· MV Ea(lateral)
· MVA(PHT)
· MV VTI
· MV HR
· MVA(VTI)
· LVOT Diam
· LVOT VTI
· MV VTI
· MV AccT
· MV DecT
· IVRT
· IVCT
· LV Tei Index(Doppler)
· MV C-O dur(Doppler)
· LVET(LV Tei Index-Doppler)
· MR Vmax
· MR VTI
· dP/dt
· PISA MR
· MR Rad
· MR Als Vel
· MR VTI
· Pulmonary valve
· RVOT Vmax
· RVOT VTI
· CO(RVOT)
· RVOT Diam
· RVOT VTI
· PV HR
· PV Vmax
· PV VTI
· PV HR
· PV AccT
· MPA Vmax
· LPA Vmax
· RPA Vmax
· RVET(D)
· RVPEP(D)
· PAEDP
· PR Ved
· RAP
· PISA PR
· PR Rad
· PR Als Vel
· PR VTI
· Tricuspid valve
· TV Vmax
· TV E Vel
· TV A Vel
· TV VTI
· TV HR
· RVSP
· TR Vmax
· RAP
· RV Tei Index

· TV C-O dur
· RVET(RV Tei Index)
· PISA TR
· TR Rad
· TR Als Vel
· TR VTI
· Pulmonary vein
· PVein S Vel
· PVein D Vel
· PVein A Vel
· PVein A Dur
· PVein S VTI
· PVein D VTI
· PVein DecT
· PISA
· PISA AR
· PISA MR
· PISA PR
· PISA TR
· Shunts
· ASD Vmax
· VSD Vmax
· PDA Vel(d)
· PDA Vel(s)
· TDI
· MV Ea(medial)
· MV Aa(medial)
· MV ARa(medial)
· MV DRa(medial)
· MV Sa(medial)
· MV Ea(lateral)
· MV Aa(lateral)
· MV ARa(lateral)
· MV DRa(lateral)
· MV Sa(lateral)
· LAA Ev

· Vascular

· 2D mode:

· CCA IMT
· ICA IMT
· ECA IMT
· Carotid artery stenosis ratio 1 (supports 4)
· Normal diameter
· Stenotic diameter
· Normal area
· Stenotic area

· Doppler mode:

· Common carotid artery
· Bulbus
· Internal carotid artery
· External carotid artery

· Small Parts

· 2D mode:

· Thyroid long diameter
· Thyroid thick diameter
· Thyroid wide diameter
· Thyroid volume
· Thyroid mass 1 (supports 3)
· Thyroid mass 1 d1
· Thyroid mass 1 d2
· Thyroid mass 1 d3
· Testicular long diameter
· Testicular thick diameter
· Testicular wide diameter
· Testicular mass 1 (supports 3)
· Testicular mass 1 d1
· Testicular mass 1 d2
· Testicular mass 1 d3

· M mode:

· Distance (M)
· Heart rate (M)
· Slope
· Time (M)

· Doppler mode:

· Superior thyroid artery
· Inferior thyroid artery
· Testicular artery
· Testicular vein
· Epididymal artery
· Epididymal vein

***For the above items involving long diameter, thick diameter, and wide diameter measurements, volume can be calculated except for certain items.**

***Not all measurement items in this section are covered here; please refer to the user manual for details.**

7.3 Zola AI Automatic Measurement & Analysis

Cardiology

· LV(M)

· Supports clinical significance indicators

· Supports single/full cycle switching

· LA/Ao automatic measurement

· Supports clinical significance indicators

· MV EPSS automatic measurement

· Supports clinical significance indicators

· Supports single/full cycle switching

· LVSId(A4C) automatic measurement (canine only)

· Supports clinical significance indicators

· LVSId(LA4C) automatic measurement (canine only)

· Supports clinical significance indicators

· Auto EF

· IVSd(PLAX) automatic measurement

· Supports clinical significance indicators

· IVSd(PSAX) automatic measurement

· Supports clinical significance indicators

· LVPWd(PLAX) automatic measurement

· Supports clinical significance indicators

· LVPWd(PSAX) automatic measurement

· Supports clinical significance indicators

· AV Vmax automatic measurement

· Supports clinical significance indicators

· AV VTI automatic measurement

· Supports clinical significance indicators

· Supports single/full cycle switching

· MV E/A automatic measurement

· Supports clinical significance indicators

· Supports single/full cycle switching

· TV Vmax automatic measurement

· Supports clinical significance indicators

· PV Vmax automatic measurement

· Supports clinical significance indicators

· PV VTI automatic measurement

· Supports clinical significance indicators

· Supports single/full cycle switching

7.4 Reports

· Provides dedicated report templates for various applications

· Supports adding multiple ultrasound images

· Report measurements can be selected from recent, average, maximum, or minimum values; measurement values are editable

· Supports quick addition of terms and templates from expert library

· Report display items selectable

· Patient information: Animal name, ID, date of birth, age, gender, animal number, animal type, owner, neutered status, clinician, operator, accession number, examination date

· Measurements

· Ultrasound images

· Multiple pregnancy data

· Ultrasound impressions

· Ultrasound findings

· Header

· Footer

· Page number

· Signature

· Ultrasound image layout: 1/row, 2/row

· Font size: 12-20

· Font weight: Normal, Bold

· Report preview supports zoom in and zoom out

· Supports saving/loading PDF format reports

· Supports exporting reports in PDF format

8 Exam Storage and Management

8.1 Exam Storage

· Hard disk capacity: ≥1TB

· Stores digitized single-frame and cine files from all imaging modes

8.2 Exam Management

· Supports searching animal exam information by "animal name, date of birth, exam date, animal ID"

· Supports browsing and analyzing current and historical exams

· Supports creating new exam, activating exam, pausing exam, resuming exam, deleting exam, ending exam

· Supports measurements on stored images and cines

8.3 Data Management

· Data storage

  · Image data: Raw/DICOM format

· Data sending:

  · Image formats: JPG, BMP, TIFF

  · Video formats: AVI, MP4

  · DICOM format: DCM

  · Raw formats: RAW, RAW 8bit

· Data backup

  · Supports backing up animal exam data to USB/optical disc (CDFS format) storage devices

  · Supports restoring data from USB/optical disc (CDFS format) storage devices to the system

· Data recovery

  · Supports restoring deleted data from recycle bin

· Data sharing

  · WiFi image transfer

  · Supports sharing images, videos, and reports to mobile devices

  · Supports online magnified viewing of images

  · Supports online full-screen video playback

  · Supports single file download or batch download

  · Bluetooth image transfer

  · Supports sharing images and reports to mobile devices

  · LAN direct transfer to PC

  · Supports transferring images, videos, and reports to PC

  · Supports one-key transfer of images and videos to PC

9 Connectivity

· Supports wired network connection (Ethernet)

· Supports wireless network connection (optional)

· Supports Bluetooth connection (optional)

· Supports DICOM 3.0

· Supports teleconsultation

  · Supports direct initiation of teleconsultation from the ultrasound system

  · Supports remote reverse control of ultrasound parameters

  · Supports live teaching from the ultrasound system with multi-user online viewing

  · Supports screen sharing

10 Transducers

10.1 Linear

· L13-5D

· Applications: Abdominal, Small Parts, Vascular

· Bandwidth: 4.2 ~ 15.0MHz

· Elements: 128 elements

· Field of view: 10-38mm

· EFOV: 20°

· Display depth: 20-280mm

· Fundamental frequency bands: 4.2-6.3MHz, 6.0-9.5MHz, 8.5-15.0 MHz

· Harmonic frequency points: 8.0 MHz, 9.4 MHz, 10.6MHz, 12.2 MHz
· Color Doppler frequency points: 4.5 MHz, 5.0 MHz, 5.5 MHz (HR Flow)
· Spectrum Doppler frequency points: 4.5MHz, 5.0 MHz, 5.5MHz

10.2 Convex

· C11-3D

· Applications: Cardiac, Abdominal, Reproductive, Vascular, Small Parts
· Bandwidth: 3.5 ~ 12.0MHz
· Elements: 128 elements
· Field of view: 30°-106°
· EFOV: 116°
· Radius of curvature: 15mm
· Display depth: 20-280mm
· Fundamental frequency bands: 3.5-6.3MHz, 6.0-7.5MHz, 6.8-12.0 MHz
· Harmonic frequency points: 7.2 MHz, 8.0 MHz, 9.4 MHz, 10.0 MHz
· Color Doppler frequency points: 4.5MHz, 5.0 MHz, 6.2 MHz (HR Flow)
· Spectrum Doppler frequency points: 4.5 MHz, 5.0 MHz, 6.2MHz

· C5-2D

· Applications: Abdominal, Reproductive, Vascular, Small Parts
· Bandwidth: 1.0 ~ 7.5MHz
· Elements: 128 elements
· Field of view: 26°-71°
· EFOV: 81°
· Radius of curvature: 50mm
· Display depth: 40-460mm
· Fundamental frequency bands: 1.0-3.0MHz, 2.6-4.5MHz, 4.2-7.5MHz
· Harmonic frequency points: 4.0MHz, 5.0MHz, 6.0 MHz, 6.4MHz
· Color Doppler frequency points: 2.5MHz, 3.1MHz, 3.5 MHz (HR Flow)
· Spectrum Doppler frequency points: 2.5MHz, 3.1MHz, 3.5MHz

10.3 Phased Array

· P10-3D

· Applications: Cardiac, Abdominal
· Bandwidth: 2.5 ~ 13.0MHz
· Elements: 64 elements
· Field of view: 30°-89°
· Display depth: 30-320mm
· Fundamental frequency bands: 2.5-5.5MHz, 4.8-7.0MHz, 6.8-13.0 MHz
· Harmonic frequency points: 6.0 MHz, 6.4 MHz, 7.2 MHz, 8.0 MHz
· Color Doppler frequency points: 3.0MHz, 4.0MHz, 5.0 MHz (HR Flow)
· Spectrum Doppler frequency points: 3.0MHz, 4.0MHz, 5.0 MHz
· Continuous Doppler frequency points: 3.3MHz, 5.0MHz

· P12-4D

· Applications: Cardiac, Abdominal
· Bandwidth: 3.5 ~ 15.0MHz
· Elements: 64 elements
· Field of view: 28°-90°
· Display depth: 30-320mm
· Fundamental frequency bands: 3.5-6.5MHz, 6.0-9.5MHz, 8.5-15.0 MHz
· Harmonic frequency points: 8.8 MHz, 10.0 MHz, 10.6 MHz, 12.2 MHz
· Color Doppler frequency points: 4.0MHz, 4.5 MHz, 5.0 MHz (HR Flow)
· Spectrum Doppler frequency points: 4.0MHz, 4.5 MHz, 5.0 MHz
· Continuous Doppler frequency points: 5.0MHz, 6.6MHz

· P5-2D

· Applications: Cardiac, Abdominal
· Bandwidth: 1.0 ~ 6.5MHz
· Elements: 64 elements
· Field of view: 28°-90°
· Display depth: 40-420mm
· Fundamental frequency bands: 1.0-2.6MHz, 2.4-3.8MHz, 3.5-6.5 MHz

· Harmonic frequency points: 3.6 MHz, 4.0 MHz, 5.0 MHz, 6.0 MHz
· Color Doppler frequency points: 2.0MHz, 2.5 MHz, 3.2 MHz (HR Flow)
· Spectrum Doppler frequency points: 2.0MHz, 2.5 MHz, 3.2 MHz
· Continuous Doppler frequency points: 2.0MHz, 3.3MHz

11 System Inputs and Outputs

· USB 2.0 ports: 4
· HDMI port: 1
· Video port: 1
· S-Video port: 1
· VGA port: 1
· Printer remote control port: 1
· Ethernet port: 1
· AC input port: 1
· AC output port: 1
· Transducer ports: 4
· ECG port: 1

12 Presets

12.1 System Presets

· Region

Hospital Information

· Name
· Address
· Telephone
· Fax
· Logo

Language & Time

· Language: Chinese, English, Spanish, French, Russian, German, Italian, Portuguese, Polish, Romanian
· Input method
· Date and time
· Date format
  · yyyy-MM-dd
  · MM-dd-yyyy
  · dd-MM-yyyy
· Time zone
· Current time
· Time format (24-hour, 12-hour)
· Synchronize

· General

Animal Information

· Animal types
· Bovine
· Canine (<5kg)
· Canine (>15kg)
· Canine (5-15kg)
· Equine
· Other
· Feline
· Ovine
· Animal information fields
· Animal name
· Date of birth
· Gender
· Age
· Hospital
· Animal ID
· Operator
· Height/weight units
· Metric
· Imperial

Exam Settings

· On end exam, enter
  Scan
  New animal
  Worklist
· Automatically send patient data to DICOM server after ending exam: On/Off

12.2 Exam Presets

· Transducer: Select transducer type
· Exam mode library: Displays all exam modes supported by the current transducer
· Selected exam modes: Displays exam modes already added for the current transducer
· Add/Remove exam modes under the current transducer

· Add All/Remove All exam modes under the current transducer
· Add/Remove all exam modes of the same type
· Set default exam mode for the current transducer
· Delete custom exam modes (custom parameter presets named and displayed under the corresponding transducer)
· Supports adjusting the display order of exam modes
· Supports quick exam arrangement
Frequency of use
Most recent use

12.3 Annotation Presets

· Current annotation library
· Available libraries: Displays all current annotation libraries
· Selected annotation libraries: Displays annotations already added for the current library
· Add/Remove annotations from the current annotation library
· Add All/Remove All annotations from the current annotation library (default exam modes cannot be removed)
· Delete custom annotation libraries
· Add new annotations
· Supports adjusting annotation display order
· **System Screen Saver**
· Enable screen saver
· Wait 1/10/30/60 minutes
· Show login screen on exiting screen saver: On/Off
· Restore defaults
· Select image
· Preview
· **System Time**
· Show system time: On/Off
· **Image**
· **Image Storage**
· cine storage length
· Image size
· Image area
· Standard area
· Video output
· PAL
· Standard area
· Image area
· NTSC
· Standard area
· Image area
· **Forward storage length**
· Time: 1-120 seconds
· **Backward storage length**
· Time: 1-480 seconds
· **Image Settings**
· Transducer: Select default transducer model
· TI type: TIB, TIC, TIS
· Freeze state: cine, Measurement, Caliper
· Steer: C&PW, C/PW
· Auto invert
· Lateral scale display
· Panoramic imaging scale display
· Activate B+Color when moving PW sample line
· **Application**
· **Measurement Calipers**
· Cursor type: Numeric, Symbol
· Cursor size: Large, Medium, Small
· Color (active): Green, Yellow, Red, White
· Color (inactive): Green, Yellow, Red, White
· Result size: Extra large, Large, Medium, Small
· Cardiac cycle: 1~8
· Delete measurement results when deleting calipers: On/Off
· **Annotation**
· Font size: Large, Medium, Small
· Arrow size: Large, Medium, Small

· Automatically clear annotations when thawing image, switching transducer or exam mode: On/Off

· Automatically clear body marker when thawing image: On/Off

· **Custom Keys**

· Trackball sensitivity: Slow, Medium, Fast

· Key brightness: 0~9

· Key tone: On/Off

· **Key Type**

· Keys (Save1, Save2, Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8)

· Foot switch

· **Function Category**

· Output

· Save image to disk

· Save cine prospective

· Save cine retrospective

· Print

· Analog image print

· Digital image print

· Image mode

· Enter tissue Doppler mode

· Enter elastography mode

· Enter panoramic imaging mode

· Enter anatomical M mode

· Enter dual-live mode

· Enter quad-frame mode

· Others

· QSave

· Freeze/Thaw

· Workstation

· Browse

· Save auto calculation results

· **Permissions**

· Enable permissions

· **User List**

· Administrator: Can view all patient data in the system; can add users, delete users, import data, export data, delete data, edit data, store data, upgrade software/firmware, etc.

· Regular user: Can view all patient data in the system; can import data, export data, delete data, edit data, store data, etc.

· Emergency user: Can view and store patient data

· Add

· Delete

· Change password

12.4 Measurement Presets

· **Caliper Measurements**

· Preset measurement items

· Remove measurement items

· Adjust measurement item order

· Set default measurement item

· Set measurement item properties

· **Set measurement sequence**

· None (does not activate any measurement item after completing current)

· Repeat (continues with the same measurement item after completing current)

· Next (automatically activates the next measurement item after completing current, i.e., continuous measurement)

· **Application Measurements**

· Preset measurement items

· Remove measurement items

· New: Add custom measurement item/calculation item

· Delete: Delete custom measurement item/calculation item

· Advanced: Open advanced measurement settings, where you can add alternate measurement packages and create custom measurement packages under the current exam mode

· Add research item

· Adjust measurement item order

· Set default measurement item

· Set measurement item properties

· **Set measurement sequence**

· None (does not activate any measurement item after completing current)

· Repeat (continues with the same measurement item after completing current)

· Next (automatically activates the next measurement item after completing current, i.e., continuous measurement)

· **Advanced**

· Add alternate measurement packages

· Remove selected measurement packages

· Add custom measurement packages

· Delete custom measurement packages

· Adjust measurement package order

· Set default measurement package

· **Report Templates**

· Set default report template

· Create new report template

· Edit report template

· Delete newly created report templates

12.5 Custom Workflow

· Create new protocol

· Create new view

· Copy protocol

· Delete protocol

· Supports adjusting protocol order

· Protocol type: Sequential, Random, Insert

· Protocol application site

· Disable automatic obstetric measurements

· Disable body markers for all templates

12.6 Network Presets

· Local Network

· Wired network

· Wireless network

· DICOM Local

· DICOM Service

12.7 Print Presets

· **Print Services**

· Add service

· Delete service

· Rename service

· Add printer

· Set default print service

· **Printer Properties**

· Service type

· Service name

· Printer

· Paper orientation

· Paper size

· Paper type

· **Image Parameter Settings**

· Brightness

· Contrast

· Saturation

· Restore defaults

Note:

The specifications or features described in this document may not be available in all modes or with all transducers. ZONCARE reserves the right to change the specifications and features listed herein or to discontinue this product at any time without notice or obligation. Please contact your ZONCARE veterinary sales representative for the latest documentation.