Consona N9 series

Diagnostic Ultrasound System

Product Specification

Release 1.3.0 (Rev22125)

Concrete to Resonate

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1   System Overview

The Consona N9 series is designed to help you obtain diagnostic information quickly and acquire advanced functionality. Sharing the epochal ultrasound solution with the primary individuals worldwide.

1.1   Advantages of ZST+ platform

- Advanced Acoustic Acquisition
- Dynamic Pixel Focusing (DPF)
- Total Recall Imaging (TRI)
- Powerful Processing Architecture
- Enhanced Channel Data Processing
- ZONE Sonography® Technology
- Up to 6,248,832 channels

2   Physical Specification

2.1   Dimension and weight

- The control panel and the monitor is in the lowest position.
- Configured with dual-wing floating support arm and 23.8-inch monitor
– Depth: 840±40mm
– Width: 542±10mm
– Height: 988±20mm
- Weight: ≤65kg (net weight, standard configuration)

2.2   Audio speakers

- Stereo audio speakers

2.3   Support arm

Dual-wing floating support arm

2.4   Electrical power

- Voltage: 100-240V~
- Frequency: 50/60 Hz
- Power consumption: 550 VA

2.5   Operating Environment

- Ambient temperature: 0-40°C
- Relative humidity: 20%-85% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

2.6   Storage & Transportation Environment

- Ambient temperature: -20-55 °C
- Relative humidity: 20%-95% (no condensation)
- Atmospheric pressure: 700hPa-1060hPa

3   User Interface

3.1   Control panel

- Brightness adjustable for the backlight of the control panel
- Backlit QWERTY keyboard
- 4 keys for user-defined functions
- Rotate angle range: 180 degrees
- Down/up: 300±20 mm

3.2   Monitor

- 23.8-inch bezel-less LED monitor with high resolution
- Resolution: 1920x1080
- Viewing angle: 176 degrees
- Digital display of brightness and contrast controls on screen
- Automatic adjustment of monitor light with the changing environment
- Automatic LED brightness
- Tilt/Rotate independent adjustment
- Tilt angle range: 105±10 degrees
- Rotate angle range: 90±5 degrees (to the left); 180±5 degrees (to the right)
- From front to back: 350±20mm
- From bottom to top: 150±20mm

3.3   Touch screen

- 15.6-inch high sensitivity anti-glare color touch screen
- Resolution: 1920*1080
- Digital brightness and contrast adjustment through preset
- Angle adjustable range: 50 degrees
- Viewing angle: 178 degrees
- Support touch screen gestures
- Support either hand writing or with gloves on
- Editable buttons: long press to add, delete or move buttons
- Clinical scenario-based 3D/4D user interface
- Digital TGC
- Short-cut switch of latest used probe & exams

3.4   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 ontouch screen

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- Rotate or erase on projected 3D/4D image on touch screen
- 8 user defined gestures using two fingers for more functions, such as freeze, print, activate specific imaging modes, measurements, and some other special functions.

3.5 System boot-up

- Boot-up from shut-down: <60 sec
- Boot-up from stand-by: <15 sec
- Shut-down: <30 sec

3.6 Comments

- Supports text input and arrow
- Voice annotation: record voice as annotation for images and cine
- Support freehand marking on touch screen
- Adjustable text size and arrow size
- Supports home position
- Covers various application

3.7 User customizable Wheels

- Diameter: 125mm
- 4 castors for total lock and break

3.8 Transducer port and holder

- Transducer ports with dust prevention: 5 active ports and 1 pencil probe port
- Support hot plug
- Transducer holder: 7, 1 intracavitary transducer holder and 6 Transducer& ultrasound gel holders

3.9 System Noise

≤26dB @25°C

-

3.10 Bodymark

- More than 232 bodymarks for versatile application
- User customizable

4 Imaging Parameters

4.1 B-mode and 2D Gray Image Mode

- FOV, location, and density adjustable
- Rotated scan and trapezoid imaging by linear array transducer, with a maximum rotation angle of 12 degrees
- ExFOV function by convex array

transducer, linear array transducer, endocavity transducer, and volume transducer

- THI (Tissue Harmonic Imaging) and PSH (Phase Shift Harmonic
- Gain: separate adjustment in B, M, and D modes, ≥ 100 dB, visible adjustable step 1 dB/step
- TGC/LGC: 8 segments
-

4.2 M-mode and Color M-mode

- Separate and adjustable gain in B mode and M mode
- Anatomical M-mode, three sampling lines, 360° rotation adjustment, obtaining Anatomical M images in real-time and frozen 2D images
- Display mode: B/M and M
- Color M-mode

4.3 Color /Power Mode in Color Doppler Imaging

- Display of speed, speed variance, energy, and direction energy
- Dual real-time
- Display mode: B/C, B/C/M, B/POWER, and B/C/PW
- Steer: ≥ ±30 degrees, sampling frame automatically adjusted by the blood flow direction of transducer
- Baseline: hierarchical adjustment
- Speed marking function, marking the boundary of different blood flow speeds and observing blood flow distribution and speed gradient
- High Resolution Flow, an innovative technology that is designed to visualize vessel profiles and complex flow patterns with higher resolution.
- Glazing Flow, an advanced image processing technology to demonstrate the 2D blood flow with 4D visualization for easy definition and clarity.

4.4 PW /CW Mode in Spectral Doppler

- Including pulse Doppler, pulse repetition frequency, and continuous wave Doppler
- Display formats: V2:3, V3:2, V3:1, H2:3, Full, Duplex/Triplex (PW only), (V: vertical, H: horizontal)
- Display modes: B, PW, B/PW, B/C/PW, B/CW, and B/C/CW
- Gain: 0-100, 2/step
- Baseline: -4-4, 1/step
- Sample volume size: 0.5-30 mm, multi-level adjustment
- Baseline: ≥ 8 steps
- Sweep speed: 6 steps
- Invert: on/off

- Automatic spectrum measurement

4.5 Free Xros M/Free Xros CM

- Speed: 25mm/s, 35mm/s, 50mm/s, 65mm/s, 100mm/s, 200mm/s
- Gray Map: 1-8, 1/step
- Tint Map: off, 1-8, 1/step
- Display format: V2: 3, V3: 2, H2: 3, V3: 1
- Angle
- Delete
- Undo
- Edit
- Display: On/Off
- show A: On/off
- show B: On/off
- show C: On/off
- ZoneVue (Phased array transducer cannot be adjusted)

4.6 Advanced Imaging Technics

- Preset condition: Presets optimal image inspection conditions for inspecting different organs.
- iBeam, compounding processing technology, permits use of multiple scanned angles to form a single image, resulting in enhanced contrast resolution and improved visualization. It supports rotating compound ultrasound imaging by up to nine sonic beams and 3-gear adjustment.
- iClear (Speckle Suppression Imaging): This feature is supported in 2D imaging, contrast imaging, and 3D imaging modes. It supports 7-gear adjustment.
- Tissue-specific imaging: Allows for the combination of multiple imaging conditions (routine, liquidity, and fattiness) based on different tissue characteristics.
- iTouch$^+$, Auto Image Optimization, instant auto image optimization in B, Color and PW Modes by one click.
- Optimization can be applied to 2D gray-scale, color Doppler, spectral Doppler, and contrast imaging. It can automatically optimize the rotation angle and the size and angle of sampling volume for spectral Doppler. It supports 9-gear adjustment.
- Smart Track: It optimizes Color/Power mode image parameters as per the current tissue characteristics for a better image effect. The angle and the position of the ROI are adjusted after the function is enabled. The area is

tracked without being affected by the dynamic moves.
- HD Scope. By processing channel data multiply and retrospectively, HD Scope can improve the detail information and image contrast on specific area maximally.
- Echo Boost
- iNeedle, needle visualization enhancement, enhancing the visualization of needle shaft on the image dynamically.
- This feature is supported by the convex array transducer and linear array transducer, displays the effects before and after enhancement on two screens in real time for comparison, and corrects angles adaptively

4.7 Zoom

- Zoom: Spot Zoom, Res Zoom, Pan zoom
- iZoom: convertible 3 steps; normal image, zoom standard area, zoom only image area

4.8 3D/4D Imaging

- Transducer types: abdomen volume transducer and endocavity volume transducer
- Freehand 3D, real-time 4D, and color 3D imaging
- Routine imaging modes: surface mode, maximum mode, minimum mode, and X-Ray mode
- Multiple light sources: directional light, point light, and spot light, and free combination of multiple light sources
- Smart Scene 3D, an innovative technique of automatic scenario-oriented volume scan for extremely easy, efficient and accurate exams. It is capable of automatically identifying tissue characteristics (such as fetal brain, fetal face, fetal bone, fetal spine, pelvic floor) and realizing organ-specific diagnosis with full-stack smartness including imaging optimization, planes acquisition and quantification.
- iPage+, multiple tomographic parallel slices imaging, to display volume image with slices, for better display the spatial relationship of tissue and lesion.
- 25 or more images of different depths can be displayed on the same screen, and the slice distance can be adjusted in the range of 0.5 mm to 10.0 mm
- SCV+, Slice Contrast View Plus, includes SCV imaging and CMPR functions. SCV imaging can reduce speckle noise and improve contrast resolution as well as enhance signal-noise ratio, which helps in discovering diffuse pathology in organs. CMPR allows straightening of a curved surface/anatomy. In clinical application, this is usually used for imaging fetal spine.
- STIC, Spatio-Temporal Imaging Correlation,

based on the movements of the fetus, rebuilt and show the anatomical structure within a physical movement by using the interconnection between the time and the space, for better diagnosis in 4D function. Color STIC

- Color 3D, provides more visualized flow information, especially in complex vascularization tissue. 3D imaging is supported in color and energy modes.
- Niche, compiles the 3 MPRs together according to their relative positions, to provide a much clearer interior anatomical structure for diagnosis
- Smart Planes CNS, automatic detect the standard fetal CNS planes, and calculate the anatomical parameters for each plane. It provides the doctors an efficient and precise way for fetal CNS diagnosis.
- It can obtain four or more standard cranial planes and six or more common measurement indicators with one click.
- Smart Face, allows to recognize fetal face and remove the shading obstacle data automatically, and then display the face in an optimal viewing angle.
- iLive, an advanced rendering mode for realistic volume imaging display, brings a better imaging experience by adding lighting rendering effect to the traditional way, allowing human tissue texture to be revealed more clearly. This feature provides the Hyaline function.
- Smart FLC, smart follicle, automatic calculation and assessment of follicles with 3D image. It automatically splits anechoic structures with one click and displays anechoic structures of different positions and sizes in different colors.

It automatically measures the follicle's diameter, X-axis length, Y-axis length, Z-axis length, and average length and volume in the three axes.

- 3D/4D data offline processing: Readjusts imaging of stored data and stores the images after adjustment
- to the recognized anatomical structure of certainorgans

4.9   iScape View

- iScape View is Real-time panoramic imaging. It provides the panoramic image for large area than normal image.
- Supports the convex array transducer,

linear array transducer, and phased array transducer.
- Supports the B mode and Power mode.
- Supports sweep speed prompt.
- Plays back images produced in the collection process

4.10   UWN+ Contrast Imaging

- Contrast Imaging, UWN+ (Ultra wideband non-linear plus contrast imaging) for perfusion evaluation of tissue and mass flow with contrast agent.
- Supports multiple types of transducers: convex array transducer, linear array transducer
- Micro Flow Enhancement (MFE)
- Dual timers
- Dual live: side by side displays tissue image and contrast image
- Mix: mix contrast image with tissue image
- Contrast imaging QA:
- Support Time-Intensity Curve (TIC) analysis
- Tracking ROI tissue movements
- Manually-drawn ROI: oval-shaped or circular
- Up to 8 ROIs
- Motion tracking: Reduce the effect of tissue movement
- Raw curve and fit curve
- Table report analysis
- Exporting current data in CSV format

4.11   Strain Elastography

- Strain Elastography, natural touch elastography, it provides qualitative tissue stiffness evaluation.
- Transducer types: linear array transducer, endocavity transducer
- Stress compensation technology: reducing deeper tissue artifacts, obtain more uniform stress throughout whole field
- Elastic mode: providing pressure operation prompt icons and supporting viewing the pressure of the image frame by frame
- Software for quantitative analysis of tissue stiffness: measurement of strain, strain rate, and strain histogram
- Quantitative analysis of the elasticity of the tissue around the mass (Shell measurement and analysis functions)
- Quantitative measurement mapping analysis: simultaneous measurement of elastic graphs during tissue chart measurement

4.12   STE/STQ Imaging

- STE, Sound Touch Elastography, real-time 3D shear wave imaging with quantitative tissue stiffness evaluation. STQ, Sound Touch

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Quantification, technology based on point shear wave to provide quantitative tissue stiffness evaluation.

- Supported transducers: convex array transducer and linear array transducer.
- Adjusts the size of the sampling frame in real time and obtains quantitative data within the sampling frame such as Young's modulus E (kPa), shear wave velocity Cs (m/s), and shear modulus G (kPa).
- The image layout in real-time shear wave imaging and 2D dual real-time imaging can be up-down or left-right, which can be adjusted.
- Generates quantitative data on tissue stiffness in kPa and m/s.
- Provides quantitative analysis of the elasticity of the tissue around the mass (Shell measurement and analysis functions).
- Supports data display on trusted charts.
- Supports high frame rate sound touch elastography and provides STE with much higher frame rate for more smooth and consistent shear wave imaging.

4.13 Tissue Doppler Imaging (TDI)

- Imaging modes: color speed mode, energy mode, spectrum mode, and M mode
- Quantitative analysis tool for tissue Doppler: tracking the TDI velocity, strain, and strain rate of myocardial tissue in 8 or more ROIs Exporting current analysis data in the CSV format
- Free Xros CM: synchronous display of synchronism and contrast among motion of myocardial tissue segments

4.14 Tissue Tracking QA

- Analyzes speckle images of 2D wall motions by using the speckle tracking technology and provides the cardiac tissue tracking function for high-efficient myocardial movement evaluation without angle-dependent.
- Tracks myocardial movement in 2D mode and supports tracking the trajectory of endocardium, epicardium, and myocardium.
- Track point: 20-40, 1/step
- 6 views for analysis: ALAX, A4C, A2C, PSAXB, PSAXM, and PSAXAP
- Tissue quantitative chart and curve analysis
- Parameters: Volume, Speed,

Displacement, L Strain, L Strain R, T Strain, T Strain R, Area, R Strain, R Strain R, C Strain, C Strain R, Global Strain, and Global Strain-rate

- Bull-eye evaluation and multi-parameters quantitative analysis
- It must be connected to ECG during the image collection process

4.15 Stress Echo

- Stress Echo, embedded with series Stress Echo protocol for cardiac function evaluation.
- 14 or more factory protocols
- User-defined protocols
- ECG triggered acquisition, display, selection, comparison, evaluation and archiving of multiple cardiac loops during various stages of a stress echo examination
- ASE16 and ASE17 as the standards for wall motion scoring
- Measurement of LV Volume in all phases of a cardiac cycle
- Wall motion scoring
- ASE16 or ASE 17
- Scores of different segments displayed in different colors
- LV volume measurement
- Measurement of LV Volume in all phases of a cardiac cycle
- Report
- Reporting for both wall motion scoring and LV volume measurement

4.16 Auto EF

- Automatically identifies the left ventricular membrane and calculates the ejection fraction, and quantitatively analyzes the left ventricular function.
- Automatically recognizes the four-chamber heart and two-chamber heart planes and the myocardial boundary and performs automatic tracing, without the need for manual plane selection and manual tracing.
- Output EDV/ESV/EF/SV/CO by Simpson method
- Activated with or without ECG
- Adjustment for the border of endocardium by single point or multi points
- R-VQS (RF-data Based Quantitative Analysis)
- Provides a precise and quantitative tool for vascular stiffness evaluation.
- Provides quantitative assessment of vessel wall stiffness, and analysis of the vessel stiffness coefficient and pulse wave velocity (PWV).

4.17 Smart Pelvic

- Automated pelvic floor measurement through 2D and 3D ultrasound

- Automatic acquisition of measurement parameters required for pelvic floor ultrasound inspection by selecting feature points and quickly establishing reference lines
- Automated tracing and measurement of anal levator hiatus
- 3 reference line measurement systems
- Automated measurement of the anterior, lateral, and posterior of pelvic cavity
- Automated identification, measurement, and assessment of anal levator hiatus

4.18 RIMT

- RIMT, RF-Data based Intima-Media Thickness, provide precise IMT thickness measurement in real time.
- It can perform automated measurement on frozen and real-time images.
- It automatically marks the intima media of the anterior and posterior walls of the blood vessel and generates measurement data accordingly.

4.19 Smart Fetal HR (Fetal Heart Rate)

- Smart Fetal HR, smart fetal heart rate, automated fetal heart beat detection and heart rate calculation for easy evaluation in both B (real-time monitoring) and M mode

4.20 Smart FLC (Smart Follicle)

- 2/3D automated follicle measurement
- It automatically measures and calculates the follicle quantity and size in the image area, and sorts and assesses them by follicle size.
- It automatically splits anechoic structures with one click and displays anechoic structures of different positions and sizes in different colors. It automatically measures the follicle's diameter, X-axis length, Y-axis length, Z-axis length, and average length and volume in the three axes.

4.21 Smart-V

- Smart Volume, fast volume calculation tools to calculate the volume of tissue structure or lesions.

4.22 IVF

- In Vitro Fertilization package,
- includes dedicated IVF image parameter/measurement/comment/bodymark /report.

- The uterus and follicle growth curve can be displayed in the IVF report.
- Data of IVF history exams can be checked in the IVF report.

4.23 Smart Thyroid

- Smart Thyroid, automated thyroid ultrasound classification and reporting tool, for efficiency and standardization of thyroid mass diagnosis
- Lesion-centered standard scan process and guide
- Automated lesion identification, detection, measurement, comment, and report generation
- Multi-lesion and multi-plane joint management and analysis

4.24 Smart Breast

- Smart Breast, automated breast mass BI-RADs classification and reporting tool, which provides automated breast ultrasound lesion classification and reporting, and it can be used as breast ultrasound quality control solution with high-efficiency.
- Lesion-centered standard scan process and guide
- Automated analysis based on TI-RADS
- Automated lesion identification, detection, measurement, comment, and report generation
- Multi-lesion and multi-plane joint management and analysis

4.25 Smart Hip

- Smart Hip, automatic hip measurements and Graf classification of neonatal and pediatric hip for easy screening of DDH (Developmental Dysplasia of the Hip).
- Smart Hepatorenal Index (HRI)
- It provides automated liver steatosis assessment by automatically calculating brightness scale ratio between the liver with renal cortex in B mode

4.26 V-Mapping

- Manual editing on the blood vessel bodymark
- Manual editing on the blood vessel chart through the touch screen to display the lesion position

4.27 iVocal

- Voice command function
- Controls the system by simple yet extensive voice commands
- iWorks (Auto Workflow Protocol)
- Automatically makes comments, marks on the bodymark, and switches the imaging mode according to the protocol in the inspection process.
- Supports user-defined protocols.
- Template import and export are available.
- Allows users to directly record user operations and form protocols, and export or import the

protocols to other devices

4.28　iScanHelper

- Tutorial function as a guidance to show basic scanning skill with graphic of probe position, schematic of anatomy and example clinical image
- Support ABD, SMP, URO, OB, GYN applications
- Support broadcasting the scanningskill in multi languages

4.29　Smart Vue

Automatic cardiac/abdomen plane recognition and scanning guidance. Smart Vue automatically recognizes the standard cardiac/abdomen view, captures images/clips, helping standardize the quality of examination.

4.30　iCompare

- Allow to compare real-time ultrasound imaging to the past DICOM CT/MRI/Mammography/X-Ray/Ultrasound images without external workstation
- Helpful to easily evaluate and follow up the progression of disease, treatment effect monitoring.

4.31　Built-in DVR (Installed in Hardware in Earlier Versions)

- Built-in digital recorder. It provides the recording function to record video images and sound during the ultrasound inspection process. The recorded information can be used in tutorial cases.
- Max storage length each time: 60 min

5　Cine Review and Raw Data Processing

5.1　Cine review

- Available in all modes
- Frame by frame manual cine loop review or auto playback with variable speed
- Maximum cine memory up to 40720 frames (B storage server) or 163s (M storage server) (depends on the mode)
- Maximum 4D cine memory: 1952 volumes (SD8-1); 8765 volumes (D7-2); 1335 volumes (DE11-3)

- Retrospective storage (1-120s pre- settable) and prospective storage (1- 480s pre-settable)
- Frame compare: displays one cine in dual format and allows frame by frame compare side by side
- Cine compare: compare cines which are saved in same imaging mode
- Jump to first and jump to last: one keystroke go to first or last frame in the cine

5.2　Raw data processing

- Supports parameter adjustment for frozen static and dynamic images.
- Allows users to adjust the following parameters in B mode after freezing: TGC, LGC, Gain, Dynamic Range, Gray Map, Tint Map, iClear, Rotation, iTouch+, Smooth, Dehaze, and Echo Boost.
- Allows users to adjust the following parameters in M mode after freezing: Gain, Speed, Dynamic Range, Gray Map, Tint Map, and Display Format.
- Allows users to adjust the following parameters in Color mode after freezing: Gain, Baseline, Smooth, Color Map, Priority, Dual Live, Invert, Velocity Tag, and Glazing Flow.
- Allows users to adjust the following parameters in PW mode after freezing: Gain, Baseline, Volume, Angle, Speed, Dynamic Range, Gray Map, Tint Map, Display Format, Invert, WF, and T/FRes.

6　Measurement/Analysis and Report

6.1　Generic measurements

- B mode: Distance, Angle, Circumference, Area, and Volume
- M mode: Slope, HR, Distance, Time, Velocity, and Acceleration
- Doppler mode: PS/ED, Velocity, HR, Time, Acceleration, and Ratio (Vel)

6.2　Automated Measurement and Analysis

- Automated spectrum measurement
- Optional envelope cardiac cycles (1, 2, 3, 4, and 5)
- Automatic real-time envelope and envelope after freezing
- User-defined display items
- PI, RI, TAMAX, TAMEAN, and blood flow
- Professional factory settings for each application
- IMT, Intima-Media Thickness, detects the carotid intima automatically, and calculate intima-media thickness automatically. Number of parameters in measurement result ≥ 7
- Smart OB: automatic measurement of four or more items on development of fetus

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- Smart NT, automatically detects and measures nuchal translucency for easy and accurate NT diagnosis.

6.3 Measurement Software Packages for Applications

- Measurement Package for Abdomen
- Provides measurement on parts including abdominal artery, abdominal vein, hepatic vein, liver, gallbladder, pancreas, epityphlon, pylorus, kidney, ureter, bladder, spleen, and inferior vena cava.
- Measurement Package for Gynecology
- Provides measurement on gynecology parts including uterine body, cervix, ovary, follicle, urethra, rectum, anal levator, and sphincter.
- Measurement Package for Obstetrics
- Fetus quantity measurement, up to four fetuses
- Fetal biophysical profile
- Z-scores
- Fetal age
- Fetal growth curve
- Weight percentile for age
- Measurement Package for Heart
- Left ventricular function measurement
- Left ventricular function measurement method: Simpson, Simpson Mod, single-plane ellipse method, dual-plane ellipse method, Bullet, Teichholz, Cube, and Gibson
- LV Mass (Cube-2D), (A-L), and (T-E)
- LA Vol (Simp) and (A-L)
- MVA (VTI) and AVA (VTI)
- CO: LVOT, RVOT, MV, and TV
- Quantitative analysis of PISA MR, PISA AR, PISA TR, and PISA PR
- Qp/Qs
- LV TEI index
- RV TEI index
- Z-scores ($\leq$ 3Y)
- Z-scores (< 18Y)
- Measurement Package for Urology
- Provides related measurement of renal, renal cortex, adrenal gland, prostate, seminal vesicle, bladder, testis, epididymis, scrotal wall, and urination volume.
- Measurement Package for Blood Vessel
- Provides related measurement of carotid artery, jugular vein, artery of upper extremity, artery of lower

extremity, veins of upper extremity, and veins of lower extremity.
- Measurement Package for Small Parts
- Provides related measurement of thyroid, parotid, lymph node, testis, epididymis, thyroid nodule, ad breast.
- Measurement Package for Emergency
- Provides measurement on emergency-related applications.
- Measurement Software Package for Orthopedic
- HIP (α)
- HIP (β)
- d/D

*This section does not cover all the measurement projects. For more information, see the user manual.

6.4 User-defined Measurement

- Predefined interfaces for custom measurement, calculation, and research

6.5 Comment and Bodymark

- Supports comment by text or arrow.
- Allows users to record an audio segment along with single-frame images or cines.
- Allows users to manually make comments on the touch screen.
- The text and arrow size is adjustable.
- The comment feature is applicable to all applications.
- More than 232 bodymarks are available for various applications.
- Users can customize bodymarks and comments.

6.6 Report

- Specific report template by application
- Editable value in report
- Images selectable
- Predefined hospital information
- Able to export as a PDF file
- Custom iReport templates
- Report thumbnail

7 Exam Storage and Management

7.1 Patient Data Management

- Patient information management
- Exam image management
- Exam report and report template management
- Patient exam record management
- Patient exam query/retrieve
- Support review of current and past exam
- New exam, Activate exam, Continue exam functions, End exam are available
- Support measurements and calculations on archived exam and images

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7.2　Exam Storage

- Digital storage of single frame and cine 2D, color and Doppler
- Export images in BMP/JPG/TIFF/DCM/AVI/MP4 format
- Back-end storage, image data export and backup without affecting real-time inspection operations
- Mobile storage by external USB
- Storage in CD
- DICOM 3.0
- Network storage (iStorage)
- Storage in local hard disk: 1 TB hard drive and 512 GB SSD (Solid State Drive)
- Printing service

8　Connectivity

8.1　Ethernet Network Connection

- Cable connection
- Wireless connection

8.2　DICOM 3.0

- DICOM Basic
- Verify (SCU, SCP)
- Print
- Store
- Storage Commitment
- Media Exchange
- DICOM Worklist
- DICOM Query/Retrieve
- DICOM Modality Performed Procedure Step - MPPS
- DICOM OB/GYN structure report
- DICOM cardiac structure report
- DICOM vascular structure report
- DICOM breast structure report
- DICOM abdominal structure report
- DICOM small parts structure report

8.3　MedTouch

- Terminal app which allows doctors to transmit patient data to terminals, preview patients' ultrasound information, and use the iScanHelper
- It can connect to a remotely-controlled ultrasound device to adjust the following parameters for the ultrasound device: Gain, Depth, Freeze/Unfreeze, Image Storage, Zoom, One-key Image Optimization, and Mode (B, Color, and Dual Live).
- Support Android and iOS powered smart devices.

8.4　u-Link

- Instant medical data transmission tool, it helps to share high quality images and clips to your PC/Phone/Pad with one click. It can be used in many scenarios such as telemedicine, quality audit, case study.
- It is used to connect the product to remote software supporting u-Link.
- It can upload static and dynamic images to the Mindray MiCO+ with one click.

8.5　UltraView

- Post processing and data analysis program for ultrasound data offline on PC.

8.6　MedSight

- An interactive app that lets you transfer clinical images straight from Mindray
- Ultrasound system to a smart device, such as mobile phone or tablet PC
- Needs to be installed on mobile terminal
- Transfer images or clips from system to mobile terminal through Wi-Fi
- Support both iOS (7.0 and above) and Android (4.0 and above) system
- For iOS powered smart device: DICOM is mandatory
- For Android powered smart device: DICOM not necessary

9　Transducers

9.1　Curved array

- C5-1
  – Application: Abdominal, Gynecology, Obstetrics, Vascular, Nerve, Musculo-skeletal, Urology, Thoracic/Pleural, Small Organ
  – Bandwidth: 1.2-6.0 MHz
  – Number of Elements: 128
  – FOV (max): 74°
  – Depth: 4.0-40.0 cm
  – Biopsy Guide: NGB-022, multiangle, reusable, LPUBKG60 (disposable)
- SC5-1N
  – Application: Abdominal, Gynecology, Obstetrics, Vascular, Nerve, Musculo-skeletal, Urology, Thoracic/Pleural, Small Organ
  – Bandwidth: 1.2-6.0 MHz
  – Number of Elements: 128
  – FOV (max): 74°
  – Depth: 4.0-40.0 cm
  – Biopsy Guide: NGB-022, multi angle, reusable;

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LPUBKG60 (disposable)
- V11-3H
  - Application: Gynecology,Obstetrics, Urology
  - Bandwidth: 3.0-12.0 MHz
  - Number of Elements: 192
  - FOV (max): 196°
  - Depth: 1.5~28.0 cm
  - Biopsy Guide: NGB-025, singleangle, reusable
- V11-3
  - Application: Gynecology,Obstetrics, Urology
  - Bandwidth: 3.0-12.0 MHz
  - Number of Elements: 128
  - FOV (max): 179°
  - Depth: 1.5~28.0 cm
  - Biopsy Guide: NGB-004, single angle, reusable; NGB-045, single angle, reusable
- V11-3B
  - Application: Gynecology, Obstetrics, Urology
  - Bandwidth: 3.0-12.0 MHz
  - Number of Elements: 128
  - FOV (max): 179°
  - Depth: 1.5~28.0 cm
  - Biopsy Guide: NGB-004, single angle, reusable; NGB-045, single angle, reusable

9.2 Linear array transducer
- L13-3N
  - Application: Abdominal, Pediatric, Small Organ, Musculo-skeletal, Vascular, Nerve, Thoracic/Pleural
  - Bandwidth: 3.0-13.0 MHz
  - Number of Elements: 192
  - FOV (max): 100%+40°
  - Depth: 1.5-35.0 cm
  - Physical Footprint: 56.8 mm*21.2 mm
  - Biopsy Guide: NGB-052, multi angle, reusable; NGB-053, multiangle, reusable
- L13-3
  - Application: Abdominal, Pediatric, Small Organ, Musculo-skeletal, Vascular, Nerve, Thoracic/Pleural
  - Bandwidth: 3.0-13.0 MHz
  - Number of Elements: 128
  - FOV (max): 100%+40°

- Depth: 1.5~35.0 cm
- Biopsy Guide: NGB-007, multiangle, reusable
- L9-3
  - Application: Abdominal, Obstetrics, Pediatric, Small Organ,Cephalic, Musculo-skeletal, Vascular, Nerve
  - Bandwidth: 2.5-9.0 MHz
  - Number of Elements: 192
  - FOV (max): 100%+40°
  - Depth: 1.5-35.0 cm
  - Biopsy Guide: NGB-034, multi angle, reusable
- L16-4Hs
  - Application: Musculo-skeletal, Nerve, Small Organ, Vascular, Pediatric, Intra-operative, Cephalic
  - Bandwidth: 4.0-12.8 MHz
  - Number of Elements: 128
  - FOV (max): 100%+40°
  - Depth: 1.5~35.0 cm
  - Biopsy Guide: Not available

9.3 Phased array transducer
- SP5-1N
  - Application: Abdominal, Gynecology, Obstetrics, Cardiac, Pediatric, Vascular, Thoracic/ Pleural, Cephalic
  - Bandwidth: 1.5-4.5 MHz
  - Number of Elements: 64
  - FOV (max): 90°
  - Depth: 2.0~38.0 cm
  - Biopsy Guide: NGB-011, multiangle, reusable

9.4 4D Volume transducer
- DE11-3
  - Application: Obstetrics,Gynecology, Urology
  - Bandwidth: 2.0-9.0 MHz
  - Number of Elements: 128
  - FOV (max): 174°
  - Convex Radius: 11 mm
  - Depth: 4.0~40.0 cm
  - Biopsy Guide: NGB-027, singleangle, reusable
- SD8-1
  - Application: Obstetrics, Gynecology, Abdominal
  - Bandwidth: 1.8-8.2 MHz
  - Number of Elements: 192
  - FOV (max): 92°
  - Convex Radius: 45 mm
  - Depth: 4.0~40.0 cm
  - Biopsy Guide: NGB-039, multi angle, reusable

- D7-2
  - Application: Obstetrics, Gynecology, Abdominal
  - Bandwidth: 1.8-8.2 MHz
  - Number of Elements: 128
  - FOV (max): 95°
  - Convex Radius: 40 mm
  - Depth: 4.0~40.0 cm
  - Biopsy Guide: not available

9.5 Pencil transducer

- CW5s
  - Application: Vascular, Cephalic, Pediatric
  - Number of Elements: 2
  - Biopsy Guide: not available
- CW2s
  - Application: Cardiac, Cephalic, Pediatric
  - Number of Elements: 2
  - Biopsy Guide: not available

10 Peripheral Devices and Accessories

10.1 Black/white video printer (digital)

MITSUBISHI P95DW-N

10.2 Color digital `video` printer

SONY UP-D25MD

10.3 Graph/text printer

CANON TS708

10.4 Gel warmer

- Easily be disassembled off system for cleaning
- Temperature with 4 levels: off/34°C/ 37°C/40°C, with deviation of ±1°C
- Light indicator for temperature protecting
- Dimension: 82(D)*78(W)*119(H) mm
- Weight: approx. 240g (net)
- Continuous operation time: >12h

10.5 Footswitch

- USB port: FS-81-SP-2(single pedal),971-SWNOM (2/3-pedal)
- Support User-definable functions (Freeze, Save, Print)

10.6 ECG

- 12-pin, AHA/IEC, for 3-lead wires
- ECG wave display: on/off
- ECG source: Lead/External
- Position: 0~100%, 5%/step
- Trig mode: off/single/dual/timer
- Gain: 0-30, 1/step
- Sweep speed: 6 steps
- Invert: on/off

10.7 PCG (not for sale in EU countries)

- PCG wave display: on/off
- Gain: 0-30, 1/step
- Speed: 6 steps
- Smooth: 1-4, 1/step

10.8 Barcode reader

- SYMBOL LS2208 (1D)
- SYMBOL DS4608 (2D)
- JADAK HS-1M
- JADAK HS-1R

10.9 Built-in Wi-Fi 5 Wireless adapter

- Encryption: WPA, WPA2
- Max transfer speed: 300Mbps
- Protocols: IEEE 802.11 ac/a/b/g/n
- Frequency: 2.4G/5G

10.10 iVocal Microphone

SAMSON XPD2

10.11 Built-in Battery

- Replaceable and rechargeable lithiumbattery
- Full battery lasts for more than 24h instandby mode
- Battery fully-recharged time: less than4h (Under power off or standby status)
- Continuous scanning time: more than1h

10.12 Probe adapter

PCM-SA01: transforming S socket to Asocket, only for L16-4Hs

11 System Inputs and Outputs

11.1 Video output
- S-Video out: 1 port, PAL/NTSC
- HDMI: 1 Port
- VGA out: 1 port

11.2 Physio input

- Support ECG/PCG signal
- ECG module: 1 port

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healthcare within reach

11.3 Other input/output

- USB: 6 ports (2 USB 3.0 and 4 USB 2.0)
- Ethernet: 1 port
- Remote port: 1 port

12 Safety and Conformance

12.1 Quality standards

- ISO 9001
- ISO 13485

12.2 Design standards

- EN 60601-1 and IEC 60601-1
- EN 60601-1-2 and IEC 60601-1-2
- EN 60601-1-6 and IEC 60601-1-6
- EN 60601-2-37 and IEC60601-2-37
- EN 62304 and IEC 62304
- EN 62366 and IEC 62366
- EN ISO 17664 and ISO 17664

12.3 CE declaration

The ultrasound system is fully in conformance with the Regulation (EU) 2017/745 of the European Parliament. The number adjacent to the CE marking (0123) is the code of the EU-notified body that certified meeting the requirements of Annex IX excluding CHAPTER II of the Directive.