



SAMSUNG MEDISON

HS30

Data Sheet

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SPECIFICATION SUMMARY

PHYSICAL SPECIFICATIONS

- Height: 1,393 mm (with monitor)
- Width: 519 mm
- Depth: 664 mm
- Weight: Approx. 47.8 Kg (without accessories)
- Weight: Approx. 52 Kg (with Safe Working Load)

IMAGING MODES

- 2D-Mode
- M-Mode
- Color M-Mode
- Anatomical Mode
- Color Doppler Mode
- Pulsed Wave (PW) Spectral Doppler Mode
- Continuous Wave (CW) Doppler Mode
- Tissue Doppler Imaging (TDI) Mode
- Tissue Doppler Wave (TDW) Mode
- Power Doppler (PD) Mode
- ElastoScan Mode
- Dual Mode
- Quad Mode
- Combined Mode
- Simultaneous Mode
- Zoom Mode
- S-Flow Mode

FOCUSING

- Transmit focusing, maximum of eight points (four points simultaneously selectable)
- Digital dynamic receive focusing (continuous)

PROBE CONNECTIONS

- 2 or 3 Probe Connectors (Optional)
- CW Probe Connector (Optional)

MONITOR

- Main Monitor
 - Resolution: 1,920 x 1,080
 - 21.5 Inch LED Monitor

ECG

- USB Type (Type CF)

IMAGE STORAGE

- Maximum 45,000 Frames for Cine memory
- Maximum 14,000 Lines for Loop memory
- Image filing system

REAR PANEL INPUT/OUTPUT CONNECTIONS

- Audio Output Port (Right/Left)
- VGA monitor
- S-Video Output
- LAN
- USB Port
- HDMI Output

AUXILIARY

- DVD Multi-Drive
- Digital B/W Video Printer
- Digital Color Video Printer
- USB Printer
- DVD Recorder
- Foot switch (IPX8)
- USB Flash Memory Media
- USB HDD
- USB ECG
- Monitor

USER INTERFACE

- English, French, Italian, German, Spanish, Russian, Chinese, Portuguese (Brazilian)

ELECTRICAL PARAMETERS

- 100-240 VAC, 620 VA, 50/60 Hz

PRESSURE LIMITS

- Operating: 700 hPa to 1,060 hPa
- Storage: 700 hPa to 1,060 hPa

HUMIDITY LIMITS

- Operating: 30 % to 75 %
- Storage & Shipping: 20 % to 90 %

TEMPERATURE LIMITS

- Operating: 10 °C to 35 °C
- Storage & Shipping: -25 °C to 60 °C

GENERAL SPECIFICATION

PHYSICAL SPECIFICATION

- Height: 1,393 mm (with monitor)
- Width: 519 mm
- Depth: 664 mm
- Weight:
 - Approx. 47.8 Kg (without accessories)
 - Approx. 52 Kg (with safe working load)

CONSOLE DESIGN

- 2 or 3 Active Probe Ports (Optional)
- 4 Swivel Wheel Cart Based Type
- Rotation&Tilt Monitor Arm
- Built-in Printer Storages
- Ergonomic Operation Panel
- Alpha-Numeric Keyboard
- Analog TGC
- Trackball
- Probe Holder / Gel Holder
- Front Handles
- Integrated PC Module
- Integrated HDD
- Windows Embedded Standard 7
- Gel Warmer (Optional)
- ECG (Optional)

MAIN MONITOR

- 21.5 Inches High Resolution LED Monitor
- Resolution: 1,920 x 1,080 (16:9)
- Number of Color: 16.7 M
- Brightness Adjustment
- Interactive Dynamic Software Menu
- Articulated Monitor Arm
 - Rotation: +/- 135°
 - Tilt: -10° / 75°

CONTROL PANEL

- Alpha-Numeric KBD
- Analog TGC
- 6 User Keys
- Tri-Status backlit
- 4 Probe Holders

PC

- Main Processor: AMD Bald Eagle RX-425BB
- Main Memory: 8 GB
- Built-in HDD : 500GB

ELECTRICAL SPECIFICATIONS

- Frequency: 50/60 Hz
- Voltage: 100 ~ 240 VAC
- Power Consumption: Max. 620 VA with Peripherals
- Heat Dissipation: 2,729.7 [BTU/h]
- System Noise: 40 dBA
- Built-in Equipotential Circuit

SYSTEM SPECIFICATION

APPLICATIONS

- Abdomen
- Cardiac
- Gynecology
- MSK
- Obstetrics
- Pediatric
- Small Parts
- Urology
- Vascular

PRESETS

- Abdomen
- Adult Echo
- Adnexa
- Aorta
- Aortic Arch
- Arterial
- Bladder
- Bowel
- Breast
- Carotid
- Deep
- Fetal Heart
- General
- Neo Head
- NT
- Ped Abd
- Ped Echo
- Ped Hip
- Prostate
- Renal
- Spine
- Superficial
- Thyroid

- Testicle
- TCD
- Uterus
- Venous
- 1st Trimester
- 2nd Trimester
- 3rd Trimester

OPERATION MODE

- B-Mode (2D)
- Color Doppler Mode (C)
- Pulse Wave Doppler (PWD)
- Continuous Wave Doppler(CWD): Steered / Static
- Power Doppler Mode (PD)
- S-Flow Mode
- M-Mode (M)
- Anatomical M Mode
- Single/Dual/Quad Mode
- TDI/TDW
- ElastoScan Mode

DISPLAY MODE

- Dual Mode
 - B+B, B+B/C, B+B/PD, B+B/S-Flow
 - ElastoScan + ElastoScan
- Dual Live Mode
 - B+B, B+B/C, B+B/PD, B+B/S-Flow
 - B+ElastoScan
- Real-Time Triplex Mode (Simultaneous Mode)
 - B+C+PW, B+PD+PW, B+S-Flow+PW, B+TDI+TDW
- Duplex, Triplex Mode
 - B+C, B+M, B+PW, B+PD, B+S-Flow, B+CW,
B+C+PW, B+C+CW, B+C+M, B+ElastoScan, B+TDI,
B+TDW
- Quad Mode
 - Combinations of B/B, B/C, B/PD and B/S-Flow,
ElastoScan

- Zoom Mode
 - Write Zoom / Read Zoom / Pen zoom/ Panning
- Needle Mate+
- Panoramic
- Trapezoid

TRANSDUCER TYPES

- Linear Array: LN5-12, L5-12/50
- Curved Array: C2-5, C2-8
- Endo-Cavity: EVN4-9, ER4-9
- Micro-Convex Array: CF4-9
- Phased Array: PN2-4
- Pencil: DP2B

SYSTEM STANDARD FEATURES

- Hybrid Full Digital Beam-forming
- Frequency Range: 1 ~ 18MHz
- Displayed Imaging Depth (Probe dependent)
 - Minimum Depth of Field: 2cm
 - Maximum Depth of Field: 38cm
- Number of Focal Points: 1 ~ 4
- Transmission Focal Zone Position selection
 - 1 ~ 8 Focal Points Selectable
 - (Probe and Application dependent)
- Continuous Dynamic Receive Focus / Aperture
- Multi-frequency / Wideband Technology
- Frequency Compounding (FSI)
- ClearVision
- 256 Shades of Gray
- System Internal Dynamic Range: 256
- Maximum Frame Rate
 - 2,000 fps (Hz)
- Maximum Color Frame Rate
 - 400 fps (Hz)
- Image Reverse: Right/Left, Up/Down
- Image Rotation: 90°, 180°, 270°
- Pre Processing

- Post Processing
- Digital Calipers / Measurement
- Cine Memory
 - Capacity: 500 MB
 - Cine loop: Max. 14,000 Lines
 - Image storage: Max. 45,000 Frames
- QuickScan
- Report Package
- Body Marker
- System Boot up: Max. 150 Sec
- Probe Change: 2-3 Sec
- User Programmable Preset : Over 30 Presets
- User Programmable Key: 6 Keys
- SonoView
- Data Backup / Restore
- Image Exporting and Importing
- PW Velocity Range: 0.1cm/s ~ 8.8m/s
- CW Velocity Range: 1cm/s ~ 19.3m/s

SYSTEM OPTIONS

- Auto IMT+
- Cardiac Measurement
- CW Function
- DICOM 3.0
- ElastoScan
- EZ Exam+
- EZ Assist
- Mobile Export
- Needle Mate+
- Panoramic
- MultiVision
- Strain+
- ECG (AHA / IEC)
- Foot Switch
- Gel Warmer
- Printer Tray (Large / Small)
- 2P Connector PSA

- 2P Connector PSA (with Pencil Probe Port)
- 3P Connector PSA
- 3P Connector PSA (with Pencil Probe Port)

DISPLAY

- Application
- Preset
- Mode
- Date: 3 types (Selectable)
 - YYYY-MM-DD
 - MM-DD-YYYY
 - DD-MM-YYYY
- Time: 2 types (Selectable)
 - 24 hours
 - 12 hours
- Patient (General Information)
 - Patient ID
 - Patient Name (First, Middle & Last)
 - Gender: Female, Male, Other
 - Birth / Age
 - Accession Number
 - Diag. Physician
 - Ref. Physician
 - Operator
 - Indication
 - Study Information
 - E-mail
- Gestational Age: LMP/EDD/GA
- Institute
- Operator
- Probe Name
- Probe Orientation
- Depth / Width
- Focal Zone
- Focal Number
- TGC Line
- FPS (Hz)

- Frequency
- Gain
- Dynamic Range
- Map
- Frame Average
- Power
- ClearVision Index
- MultiVision Index
- Gray Bar
- Acoustic Index: TIs, Tlb, Tic
- Mechanical Index: MI
- Caliper & Measurement Result
- Indicator
- Pointer
- Body Marker
- ROI Position / ROI Size
- Wall filter
- Zoom / Panning
- Biopsy Guide Line (Probe dependent)

LANGUAGE

- Display Language
 - English, French, Italian, German, Spanish, Russian, Chinese, Portuguese (Brazilian)
- Input Language
 - English, French, German, Russian, Nordic (Norwegian, Finnish, Swedish, Danish)

OPERATING ENVIRONMENT

- Temperature: 10°C ~ 35°C
- Humidity: 30% to 75%
- Pressure: 700 ~ 1,060 hPa

PROCESSING

DATA PROCESSING

- System Processing Channel: 286,720
- Raw Data Image Analysis
- Cine
 - Function: save / review / play / stop / pause / export / Trim Start / Trim End
- Clipboard: displays thumbnail images of the acquired data for the current exam
- Enlarged Preview of the image
- Image Archive / Connectivity
- Image format: AVI, MPEG, JPEG, BMP, TIFF, DICOM
- Image Viewer (Sonoview)
- Measurements, Calculations and Annotations on CINE Playback
- Number of Image Storage (built-in SSD): max. 350,000 images (RAW format)
- Image Preview
- Cine Image Preview
- Recalling Image from the Clipboard
- Scrolling Timeline Memory
- Start and End Frame Selections for Loop Playback

PRE-PROCESSING

- B/M-Mode
 - Dynamic Range
 - Frame Average
 - Frequency
 - Gain
 - Harmonic (Probe dependent)
 - Pulse Inversion Harmonic (Probe dependent)
 - Line Density
 - Power
 - Reject
 - Scan Area
 - TGC

- Write Zoom
- MultiVision (Probe Dependent)
- Beam Steering (Probe Dependent)
- Trapezoid (Probe Dependent)
- Free Angle Plane
- PW Mode
 - Filter
 - Frequency
 - Gain
 - Power
 - PRF (Scale)
 - Sample Volume Angle
 - Sample Volume Position
- CW Mode
 - Sample Rate
 - Filter
 - Gain
 - Power
 - Sample Volume Angle
 - Sample Volume Position
- Color Doppler / Power Doppler mode
 - Filter
 - Frame Average
 - Frequency
 - Gain
 - Line Density
 - Power
 - PRF (Scale)
 - Smoothing
 - Sensitivity
 - Steer Angle
- ElastoScan Mode
 - Frame Average
 - Frequency
 - Line Density

POST-PROCESSING

- B-Mode
 - Chroma Map
 - Gray Map
 - Image Size
 - Read Zoom
 - ClearVision
 - Sweep Speed
 - M-Mode
 - Chroma Map
 - M Mode Map
 - Read Zoom
 - Sweep Speed
 - PW / CW Mode
 - Base line
 - Chroma Map
 - Doppler Map
 - Invert
 - Read Zoom
 - Sound
 - Trace Direction
 - Trace Method
 - Color Doppler / Power Doppler Mode
 - Balance
 - Baseline
 - Chroma Map
 - Color Map
 - Hide Color
 - Invert
 - Read Zoom
 - 3D Mode
 - Freedhand 3D
 - ElastoScan Mode
 - E-Gain
 - Contrast
 - Color Map
 - Alpha Blending
- Blending Level
 - Enhancement

CONNECTIVITY

DICOM

- DICOM 3.0
- DICOM Media
- DICOM Performed Procedure Step (PPS)
- DICOM Print
- DICOM Storage
- DICOM Storage Commitment (SC)
- DICOM Structured Reporting (SR)
- DICOM Verification
- DICOM Worklist
- Gray Scale Converting
- Multi Frame
- Single Frame
- Transfer Mode
 - Send after acquisition
 - Send on end exam
 - Send manually
- VOI LUT Setup

IHE

- Scheduled Workflow (SWF)
- Patient Information Reconciliation (PIR)
- Portable Data for Imaging (PDI)
- Evidence Documents (ED)

PERIPHERAL INTERFACE

- Audio out L/R
- D-SUB output
- S-Video output
- HDMI output
- USB 2.0 (6 ports)
- Ethernet 10/100/1000BASE-T
- Foot Switch: USB 2.0 (IPX 8)
- DVD Recorder: LG GP60NB50 - Recording only
- Printers

- Digital BW Video Printer: Sony UP-D897, Sony UP-D898MD, Sony UP-X898MD, Mitsubishi P95DE, Mitsubishi P95DW, Mitsubishi P95D

- Digital Color Video Printer: Sony UP-D25MD, Mitsubishi CP30DW

- USB Line Printer: Samsung CLP-620NDK, ML-2950

SCANNING PARAMETERS

2D MODE

- Angle Steering (Linear probes only)
 - LN5-12: -8, -4, 0, 4, 8°
 - L5-12/50: -12, -7, 0, 7, 12°
- Chroma Map: Off, 1 ~ 11
- Cine Play: On, Off
- Cine Speed: 6, 12, 25, 50, 100, 150, 200, 300
- Depth:
 - Convex: 5~38cm
 - Micro Convex: 3~18cm
 - Linear: 2~14cm
 - Endo: 3~18cm
 - Phased: 5~30cm
- Dual Live
- Dynamic Range: 30 ~ 256 (Step 2)
- Flip: L/R, U/D
- Focus Number: 1 ~ 4
- Frequency Compounding
- Frequency: 3 ~ 5 steps (Probe Dependent)
 - Pen, Gen1, Gen2, Res1, Res2
- Gain: 0 ~ 100
- Gray Map: 1 ~ 12
- Harmonic: On, Off
- Image Size: 70 ~ 100%
- Line Density: Low, Medium, High
- Number of TGC Level: 8
- Frame Average: 0 ~ 9
- Power: 2 ~ 100
- Pulse Inversion Harmonic: On, Off (Probe dependent)
- QuickScan: On, Update, Off
- Reject Level: 0 ~ 30
- MultiVision Index: Off, Low, Medium, High
- ClearVision Index: Off, 1 ~ 5
- Trapezoid: On, Off (Linear Probes only)

- Scan Area: 40 ~ 100%
- Zoom
 - Read Zoom: 100 ~ 800 %
 - Write Zoom
- Panning
- Free Angle Plane

M MODE

- Chroma Map: Off, 1 ~ 11
- Display format
 - M-mode only
 - Up/down, Side by side
 - Size: 50/50, 70/30, 30/70
- Dynamic Range: 30 ~ 256 (Step 2)
- Gain: 0 ~ 100
- M Mode Map: 1 ~ 12
- Power: 2 ~ 100
- QuickScan: On, Update, Off
- Sweep Speed
- Color M
- Anatomical M

COLOR MODE

- Balance: 0 ~ 16
- Baseline: -8 ~ 8
- Color Map: 1 ~ 12
- Line Density: Low, Medium, High
- Dual Live: On, Off
- Sensitivity: 0 ~ 5
- Frame Average: 0 ~ 5
- Frequency: 2 steps
- Gain: 0 ~ 100
- Hide Color: On, Off
- Invert: On, off
- Power: 2 ~ 100
- PRF: 0.1kHz ~ 19.5kHz (Probe dependent)
- Sensitivity: 0 ~ 5

- Smoothing: 0 ~ 7
- Steer Angle: -8, -4, 0, 4, 8°
- Velocity
- Filter: 1 ~ 4
- Vel + Variance Map

PWD MODE

- Auto Calc: Off, Live, Frozen
- Base Line: -8 ~ 8
- Chroma Map: Off, 1 ~ 11
- Display format: Up/down, Side by side, Doppler Only
- Display Size: 70/30, 50/50, 30/70
- Doppler Map: 1 ~ 12
- Dynamic Range: 30 ~ 256 (Step 2)
- Frequency: 2 Steps (Probe dependent)
- Gain: 0 ~ 100
- Invert: On, Off
- Power: 2 ~ 100
- PRF: 1.0 ~ 22.5 kHz (Probe dependent)
- QuickScan: On, Update, Off
- Simultaneous: On, Off
- Sound: 0 ~ 100
- Angle Correction: -80° ~ 80°
- SV Position control
- SV Size: 0.5 ~ 25mm
- Quick Angle: -60°, 0°, 60°
- Sweep Speed: 15 ~ 117 mm/s
- Trace
 - Method: Off, Mean, Max
 - Trace Direction: Both, Above, Below
- Update
- Filter: 1 ~ 4

CWD MODE

- Auto Calc.: Off, Live, Frozen
- Base line: -8 ~ 8
- Chroma Map: Off, 1 ~ 11

- Display Format: Up/down, Side by side, Doppler Only
- Display Size: 70/30, 50/50, 30/70
- Doppler Map: 1 ~ 12
- Dynamic Range: 30 ~ 256 (Step2)
- Gain: 0 ~ 100
- Invert: On, Off
- Power: 2 ~ 100
- Sample Rate: 1.8kHz ~ 57kHz (probe dependent)
- QuickScan: On, update, Off
- Sound: 0 ~ 100
- Angle Correction: -80° ~ 80°
- SV Position Control
- Quick Angle: -60°, 0°, 60°
- Sweep Speed: 15 ~ 117 mm/s
- Trace
 - Method: Off, Mean, Max
 - Direction: Both, Above, Below
- Filter: 1 ~ 4

PD MODE

- Balance: 0 ~ 16 step
- Color Map: 1 ~ 12
- Line Density: Low, Medium, High
- Dual Live: On, Off
- Filter: 1 ~ 4
- Frame Average: 0 ~ 5 step
- Frequency: 2 steps (probe dependent)
- Gain: 0 ~ 100
- Hide Color
- Invert: On, Off (S-Flow™ only)
- Power: 2 ~ 100
- PRF: 0.1 ~ 19.5 kHz (Probe dependent)
- Sensitivity: 0 ~ 5
- Smoothing: 0 ~ 5
- Steer Angle: -8, -4, 0, 4, 8
- Filter: 1 ~ 4

ELASTOSCAN MODE

- Line Density: Low, Medium, High
- Invert: On, Off
- Dual Live: On, Off
- Frequency
- Gain: 0 ~ 100
- Contrast: 0 ~ 100
- Frame Average: 0 ~ 100
- Color Map: 1 ~ 5
- Alpha Blending: On, Off
- Blending Level: 0 ~ 100
- Enhancement: 0 ~ 100

TRANSDUCERS

LINEAR

LN5-12

- Center Frequency: 8 MHz
- Band Width : 5 ~ 12 MHz
- Radius of curvature : Flat
- Field of view : 38.1 mm
- Number of elements : 128
- Biopsy Guide : Available5
- Application : Abdomen, MSK, Small Parts, Vascular, OB, GYN, Pediatric
- Safety Class: BF

L5-12/50

- Center Frequency: 7.3 MHz
- Band Width : 5 ~ 12 MHz
- Radius of curvature : Flat
- Field of view : 52 mm
- Number of elements : 128
- Biopsy Guide : Available
- Application : Abdomen, MSK, Small Parts, Vascular, OB, GYN, Pediatric
- Safety Class: BF

CONVEX

C2-8

- Center Frequency: 4.7 MHz
- Band Width : 2 ~ 8 MHz
- Radius of curvature : 51.071 mm
- Field of view : 68.176°
- Number of elements : 128
- Biopsy Guide : Available
- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

C2-5

- Center Frequency: 3.35 MHz
- Band Width : 2 ~ 5 MHz
- Radius of curvature :39.64 mm
- Field of view : 75°
- Number of elements : 128
- Biopsy Guide : Available
- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

CF4-9

- Center frequency : 5.65MHz
- Band Width: 4 ~ 9 MHz
- Radius of curvature : 14 mm
- Field of view : 92 °
- Number of elements : 128
- Biopsy Guide : Not available
- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

ENDOCAVITY

EVN4-9

- Center frequency : 6.65MHz
- Band Width: 4 ~ 9 MHz
- Radius of curvature : 10.073 mm
- Field of view : 148.092 °
- Number of elements : 128
- Biopsy Guide : Available
- Application : OB, GYN, Urology
- Safety Class: BF

ER4-9

- Center frequency : 6.65MHz
- Band Width: 4 ~ 9 MHz
- Radius of curvature : 10.073 mm
- Field of view : 148.092 °

-
- Number of elements : 128
 - Biopsy Guide : Available
 - Application : OB, GYN, Urology
 - Safety Class: BF

PHASED ARRAY

PN2-4

- Center frequency : 2.6MHz
- Band Width: 2 ~ 4 MHz
- Radius of curvature : Flat
- Field of view : 90 °
- Number of elements : 64
- Biopsy Guide : Not available
- Application : Abdomen, Cardiac, Vascular, Pediatric
- Safety Class: BF

PENCIL

DP2B

- Center frequency : 2.0MHz
- Application : Cardiac, Vascular
- Safety Class : BF

MEASUREMENT

- Caliper
- Abdomen
- Cardiac
- Vascular
- Gynecology
- Obstetrics
- Fetal Heart
- Urology
- MSK
- Small Parts
- Pediatric

CALIPER

- 2D Distance
- M Distance
- 2D Trace
- 2D Trace length
- Doppler Manual Trace
- Doppler Limited Trace
- 2 Lines Angle
- 3 Points Angle
- Ellipse (Area / Circumference)
- Spline
- Open Spline
- Closed Spline
- %Stenosis (Diameter)
- %Stenosis (Area)
- 1 Distance Volume
- 2 Distance Volume
- 3 Distance Volume
- Ellipse Volume
- Ellipse + Distance Volume
- Disk Volume
- Slope
- Heart Rate (M, Doppler)

- Time (M, Doppler)
- Velocity
- Acceleration
- RI
- Volume Flow (Diameter)
- Volume Flow (Area)
- Auto Trace
- Manual Trace
- Limited Trace

ABDOMEN

- Gallbladder
- Pancreas
- Bowel
- Kidney Vol. (Right / Light)
- Liver
- Spleen
- Aorta
- RA (Right / Left)
- Seg. A (Right / Left)
- Arc. A (Right / Left)
- Celiac A
- Splenic A
- Hepatic A (C / R / L)
- Hepatic V (R / M / L)
- Portal V (R / M / L)
- SMA
- IMA
- IVC
- IMV
- SMV

CARDIAC

- LV (2D)
- LV Vol. (Simpson)
- LV Vol. (A/L)
- LV Vol. (Bullet)

- LV Mass
- RV (2D)
- Aorta
- LA
- LA Vol. (Simpson)
- RA
- LVOT
- RVOT
- AV
- MV
- TV
- PV
- Shunt
- IVC
- Tei Index
- Plum. Vein
- Hepatic Vein
- Tissue Doppler
- Qp/Qs
- LV (M)
- RV (M)

CAROTID

- Subclavian A (Right / Left)
- CCA (Right / Left/Prox./Mid./Dist)
- Bulb (Right / Left)
- ICA (Right / Left/Prox./Mid./Dist)
- ECA (Right / Left)
- Vertebral A (Right / Left)

UE ARTERY

- Subclavian A (Right / Left)
- Axillary A (Right / Left)
- Brachial A (Right / Left)
- Radial A (Right / Left)
- Ulnar A (Right / Left)
- SPA (Right / Left)

UE VEIN

- Internal Jugular V (Right / Left)
- Innominate V (Right / Left)
- Subclavian V (Right / Left)
- Axillary V (Right / Left)
- Brachial V (Right / Left)
- Cephalic V (Right / Left)
- Basilic V (Right / Left)
- Radial V (Right / Left)
- Ulnar (Right / Left)

LE ARTERY

- CIA (Left / Right)
- IIA (Left / Right)
- EIA (Left / Right)
- CFA (Left / Right)
- SFA (Left / Right)
- DFA (Left / Right)
- Popliteal A (Left / Right)
- ATA (Left / Right)
- PTA (Left / Right)
- Peroneal A (Left / Right)
- DPA (Left / Right)
- MPA (Left / Right)
- LPA (Left / Right)
- Metatarsal A (Left / Right)
- Digital A (Left / Right)

LE VEIN

- CIV (Left / Right)
- IIV (Left / Right)
- EIV (Left / Right)
- CFV (Left / Right)
- PFV (Left / Right)
- SFV (Left / Right)
- GSV (Left / Right)
- Popliteal V (Left / Right)

- LSV (Left / Right)
- ATV (Left / Right)
- PTV (Left / Right)
- Peroneal V (Left / Right)
- MPV (Left / Right)
- LPV (Left / Right)
- Metatarsal V (Left / Right)
- Digital V (Left / Right)
- Uterine A (Right / Left)
- Placenta A
- Fetal Carotid (Right / Left)
- Fetal Aorta
- Renal A (Right / Left)
- Duct Venosus
- Fetal HR
- PLI

GYNECOLOGY

- Uterus
- Cervix
- Cyst (Right / Left)
- Ovary (Right / Left)
- Follicles (Right / Left / 1 ~ 12)
- Mass 1 ~ 3
- Ovarian A (Right / Left)
- Uterine A (Right / Left)
- Pericystic Flow
- Endometrial Flow
- Endo. Polyp
- Ovarian Mass (Right / Left)
- Uterine Tumor 1 ~ 3
- Cervical Tumor
- Ectopic Pregnancy

OBSTETRICS

- Fetal Biometry
- Fetal Cranium
- Fetal Long Bone
- Fetal others
- AFI
- CTAR
- Maternal Others
- Ratio
- Umbilical Artery
- Mid Cereb A

FETAL HEART

- LV Vol. (Simpson)
- 2D Echo
- CTAR
- MPA
- Duct Artriosus
- IVC
- Duct Venosus
- Asc Aorta
- Dsc Aorta
- MV
- TV
- PLI
- TEI
- Fetal HR
- M Echo

UROLOGY

- WG Prostate
- T-Zone Vol
- Bladder Vol.
- Residual Vol
- Renal Vol. (Right / Left)

BREAST

- Mass 1 ~ 10 (Right / Left)
- Breast Flow (Right / Left)

MSK

- Shoulder (Right / Left)
- Wrist (Right / Left)
- Knee (Right / Left)
- Ankle (Right / Left)

THYROID

- Thyroid Vol. (Right / Left)
- Thyroid Flow (Right / Left)
- Mass 1 ~ 5 (Right / Left)

TESTICLE

- Testis Vol. (Right / Left)
- Epididymis (Right / Left)
- Testis Flow (Right / Left)
- Mass 1 ~ 5 (Right / Left)

SUPERFICIAL

- Superficial Vol (Right / Left)
- Superficial Flow (Right / Left)
- Mass 1 ~ 5 (Right / Left)

PEDIATRIC

- Hip Angle (Right / Left)

SAFETY / EMC

CLASSIFICATIONS

- SAFETY
 - Type of protection against electrical shock: Class I
 - Degree of protection against electrical shock (Patient Connection): Type BF or CF Applied Part
- EMC
 - RF Emission CISPR 11: Class A
- Degree of protection against harmful ingress of water: Ordinary equipment (All of applied parts (IPX7) except for ECG, and Foot switch (IPX8))
- RoHS Compliant
- WEEE Compliant

APPLIED STANDARDS

- Safety
 - IEC/EN 60601-1: Ed. 3.0:2005 + A1:2012
 - IEC/EN 60601-1: Ed. 2.0:1988 + A1:1991 + A2:1995
 - IEC/EN 60601-1-1: Ed. 2.0:2000
 - IEC/EN 60601-1-2: Ed. 2.0:2001 + A1:2004 + Ed. 3.0:2007
 - IEC/EN 60601-1-4: Ed. 1.1:1996 + A1:1999
 - IEC/EN 60601-1-6: Ed. 2.0:2006 + Ed. 3.0:2010
 - IEC/EN 60601-2-37: 2001 + A1:2004 + A2:2005 + Ed. 2.0:2007
 - IEC/EN 60601-2-37: Ed. 1.0:2001 + A1:2004 + A2:2005
 - IEC/EN 62366: Ed. 1.0:2007
- Biocompatibility
 - ISO/EN 10993-1: 2009
- Labeling
 - EN 980: 2008
 - EN 1041: 2008
 - ISO 15223-1: 2012
- NEMA/AIUM
 - NEMA/AIUM UD-2: 2004

- NEMA/AIUM UD-3: 2004

ACOUSTIC OUTPUT MANAGEMENT

- User selectable, transducer and scanning mode dependent
- Dedicated Output Display on the system monitor display of output acoustic
- Power level, as well as thermal and mechanical indices:
- PWR – Output Power level. Range: From 2 % of maximum output
- Level is increased by 2% in each step.
- Mechanical Index (MI): 0.01~1.90 Range
- Thermal Index (TI): 0.01~6.00 Range
 - TIC – Thermal Index, Bone at Surface
 - TIB – Thermal Index, Bone at Focus
 - TIS – Thermal Index, Soft Tissue

ANTI-VIRUS SOLUTION

- Disable USB Autorun Feature
 - Executable applications in USB stick are never launched
 - Prevent autorun virus through USB stick Dedicated Output Display on the system monitor display of output acoustic
- Block Network Port (Except DICOM communication port)
 - Ultrasound Machine allow only DICOM data through DICOM port
 - The network data of other network ports are rejected by Windows firewall
- Prohibit user from accessing windows application (such as Explorer)
 - Impossible to execute applications which is not allowed
 - Impossible to access internet web pages
- Windows Defender
- Avast

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- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

CA2-9AD

- Center frequency : 4.9MHz
- Band Width: 2 ~ 9 MHz
- Radius of curvature : 60.365 mm
- Field of view : 58 °
- Number of elements : 192
- Biopsy Guide : Available
- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

CF4-9

- Center frequency : 5.65MHz
- Band Width: 4 ~ 9 MHz
- Radius of curvature : 14 mm
- Field of view : 92 °
- Number of elements : 128
- Biopsy Guide : Not available
- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

CA2-6BM

- Center frequency : 3.5MHz
- Band Width: 2 ~ 6 MHz
- Radius of curvature : 20 mm
- Field of view : 86.08 °
- Number of elements : 144
- Biopsy Guide : Not available
- Application : Abdomen, MSK, OB, GYN, Pediatric, Vascular, Urology
- Safety Class: BF

ENDOCAVITY

ER4-9

- Center frequency: 6.7MHz
- Band Width : 4 ~ 9 MHz
- Radius of curvature : 10.073 mm
- Field of view : 148.092 °
- Number of elements : 128
- Biopsy Guide : Available
- Application : OB, GYN, Urology
- Safety Class: BF

EVN4-9

- Center frequency : 6.65MHz
- Band Width : 4 ~ 9 MHz
- Radius of curvature : 10.073 mm
- Field of view : 148.092 °
- Number of elements : 128
- Biopsy Guide : Available
- Application : OB, GYN, Urology
- Safety Class: BF

EA2-11AR

- Center frequency : 6.4 MHz
- Frequency Bandwidth : 2 ~ 11 MHz
- Radius of curvature : 10.1mm
- Field of view : 150°
- Number of elements : 192
- Biopsy Guide : Available
- Application : Gynecology, OB, Urology
- Safety Class:BF

EA2-11AV

- Center frequency : 6.4 MHz
- Frequency Bandwidth : 2 ~ 11 MHz
- Radius of curvature : 10.1mm
- Field of view : 150°