SAMSUNG

HM70 EVO

Data Sheet

V1.00.00

Digitally signed by Apostol Eduard
Date: 2021.07.23 15:30:09 EEST
Reason: MoldSign Signature
Location: Moldova

Mar., 2021

Rev. 1

East Central Tower, Cheonho-dong,1077, Cheonho-daero, Gangdong-gu, Seoul, Korea
TEL:(82)2-2194-7068
www.samsunghealthcare.com
CX Group

Table of Contents

SPECIFICATION SUMMARY

PHYSICAL SPECIFICATION

- SYSTEM:
  Height: 67.2 mm, Width: 383.5 mm, Depth: 355 mm
  Weight: Approx. 6.0 kg (Including Battery)
- CART:
  Height: 823.0 mm (Maximum 1003.0 mm)
  Width: 549.1 mm, Depth: 534.3 mm
  Weight: Approx. 25 kg
  Weight: Approx. 55 kg (with Safe Working Load)

IMAGING MODES

- 2D Imaging mode
- M Imaging mode
- Color Doppler Imaging (CDI) mode
- Power Doppler Imaging (PDI) mode
- S-Flow mode
- S-Harmonic Imaging
- Pulse Wave (PW) Spectral Doppler imaging mode
- Continuous Wave (CW) Doppler imaging mode
- Tissue Doppler Imaging (TDI) mode
- Tissue Doppler Wave (TDW) mode
- Elastoscan (E) mode
- 3D/4D imaging mode
- Dual modes
- Quad Modes
- Combined modes
- Simultaneous mode
- Anatomical M Mode
- Zoom Mode
- S-Flow Mode

FOCUSING

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

PROBE CONNECTIONS

- 3 Probe Connectors

MONITOR

- 15 inch LCD monitor (LED Backlight unit)

ECG

- Type CF

IMAGE STORAGE

- Maximum 45,000 frames for CINE memory
- Maximum 14,000 Lines for LOOP memory

INPUT/OUTPUT CONNECTIONS

- Video (DVI-I or HDMI) port
- Analog RGB or Composite through VIDEO OUT (optional)
- Ethernet port
- USB port

AUXILIARY

- USB ECG
- USB Foot Switch (IPX 8)
- External Monitor
- External DVD Multi
- USB Video Printer
- USB Laser Printer
- USB Hard Disk Drive
- USB Flash Memory Media
- USB Sound Card

USER INTERFACE

- English, German, French, Italian, Spanish, Russian, Chinese, Portuguese

ELECTRICAL PARAMETERS

- Input: 100-240VAC, 3.5A, 50-60Hz
- Output: 19VDC, 10.5A, 200VA

  Battery: 14.4VDC, 6,900mAh, Approx. 75 Min.(It is subject to change depending on user environment from 60Min. to 90Min.)
- Extended Power Pack : 19VDC, 10.5A, 27.6Ah

PRESSURE LIMITS

- Operating: 700 ~ 1060hPa
- Storage: 700 ~ 1060hPa

HUMIDITY LIMITS

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

TEMPERATURE LIMITS

- Operating: 10 ~ 35ºC
- Storage & Shipping: -25 ~ 60ºC

GENERAL SPECIFICATION

PHYSICAL DIMENSION

- System
  - Height: 67.2 mm
  - Width: 383.5 mm
  - Depth: 355 mm
  - Weight: Approx. 6.0 kg(13.2 lb.) (Including Battery)
- Cart
  - Height: 1003.0 mm(Lift-up) / 823.0 mm(Lift-down)
  - Width: 549.1 mm
  - Depth: 534.3 mm
  - Weight: Approx. 25 kg (55.1lb.)

CONSOLE

- Laptop Style
- 2 Active Probe Ports (include pencil probe port)
  - 1 Probe port for mini-DLP connector (260 Pin)
  - 1 Probe port for Pencil Probe Connector (Optional)
- Front handle
- USB ECG (AHA / IEC) Support (Optional)
- Alpha-Numeric Keyboard
- Trackball
- Interactive Dynamic Software Menu
- LAN (10/100/1000 BASE-T) 1 port
- Main Processor : Intel i3-8145UE or similar
- Storage : Integrated SSD (Min. 256GB)
- Main Memory : 8GB
- OS : Windows 10 64bit
- Video Output : HDMI 1 port
- USB : 4 ports
- Lithium-Ion Battery Pack
  - 6,900mAh
  - Approx. 75 Min. (It is subject to change depending on user environment from 60Min. to 90Min.)
- Booting Time
  - Full Booting : Max. 150 Sec
  - Sleep (Hibernation) mode: Max. 60 Sec

CART

- CART
  - Adjustable Height with Gas Lift
  - Front Handle
  - 4 Swivel Wheel Cart Based Type
  - Built-in Printer Storages (Optional)
  - Built-in Power Supply (Optional)
  - 4 Probe Holders
  - 3 Extension Ports Support (Optional)

DISPLAY

- 15 inch LCD monitor (LED Backlight unit)
- Display Size: 1024x768 (4:3)
- Number of Color: 16.7M
- Brightness Adjustment

ELECTRICAL SPECIFICATIONS

- Input: 100-240VAC, 3.5A, 50-60Hz
- Output: 19VDC, 10.5A, 200VA
  Battery: 14.4VDC, 6,900mAh
- Extended Power Pack: 19VDC, 10.5A, 27.6Ah

PERIPHERAL DEVICES

- DVD-Multi
  - LG GP60NB50
- Video Printer
  - Color : SONY UP-D25MD, Mitsubishi CP30DW
  - B/W : Mitsubishi P95DE, Mitsubishi P95DW, SONY UP-D897, SONY UP-X898MD, SONY UP-D898MD
- Laser Printer
  - Color : Samsung CLP-620NDK, HP M454DN
  - B/W : Samsung ML-2950
- Inkjet Printer

- Color : Epson L805
- ECG USB Type
- Foot Switch with 3 Button, USB Type
- USB Wireless LAN : TP-Link AC1300
- Extended Power Pack
  - Approx. 240 Min. (It is subject to change depending on user environment from 3.5hr to 4.5hr.)
  - Width: 216 mm, Length: 368 mm, Height: 100 mm, Weight: Approx. 7.7 kg

SYSTEM SPECIFICATION

APPLICATIONS

- Abdomen
- Gynecology
- Obstetrics
- Urology
- Vascular
- Small Parts
- MSK
- Cardiac
- Pediatric
- TCD
- Intraoperative
- Emergency

TRANSDUCER TYPES

- Linear Array: LA3-16AD, LN5-12
- Convex Array: CA2-8AD, C2-8,
- Micro-convex Array: CA4-10M
- Endo-cavity: EVN4-9
- Phased Array: PN2-4,
- Volume (3D)
  - Convex Volume: VN4-8
  - Endo Volume : EV2-10A
- Continuous Wave (Pencil): DP2B

OPERATION MODES

- Basic Mode
  - 2D Mode
  - Color Doppler Mode
  - Power Doppler Mode
  - M Mode
  - PW Spectral Doppler Mode
  - CW Spectral Doppler Mode
  - TDI (Tissue Doppler Imaging) Mode
  - TDW (Tissue Doppler Wave) Mode
  - ElastoScan Mode
  - S-Flow Mode
  - Anatomical M Mode
- Combined Mode
  - 2D/C/PW Mode
  - 2D/PD/PW Mode
  - 2D/C/CW Mode
  - 2D/PD/CW Mode
  - 2D/C/M Mode
  - 2D/TDI/TDW Mode
  - 2D/E Mode
  - Dual Live Mode
- Dual Mode
  - Dual Mode, Quad Mode
- Zoom Mode

  - Write Zoom / Read Zoom / Pen zoom/ Panning
- Panoramic
- Trapezoid
- 3D/ 4D Mode
  - 3D Mode, 4D Mode
  - 3D XI, XI STIC
- Simultaneous mode

SYSTEM STANDARD FEATURES

- Full Screen Mode™
- Full Spectrum Imaging (Max. 3 bands)

- Tissue Harmonic Imaging
- S-Harmonic Imaging
- Trapezoidal Imaging
- Quick Scan™ (Automatic Optimization)
- Clear Vision™
- VOCAL™, XI VOCAL™
- Multi Slice View™
- Oblique View™
- OVIX™
- SFVI™
- MagiCut™
- Post-image optimization
- Patient Information Database
- Image Archive integrated on CD/DVD and HDD drive
- Support for external USB 2.0 or USB 3.0 HDD drive
- Cine memory: Max. 45,000 frames
- Loop memory: Max. 14,000 Lines
- Auto Calc (Real-Time Automatic Doppler Calculation)
- Doppler Auto Trace
- User Configurable Measurement Menu
- Customizable Measurement Menu
- Customizable Body Marker
- Customizable User Keys
- Customizable shortcut Keys
- Post-Measurement
- EzExam™
- EzCompare™
- BiometryAssist
- HQ Vision
- User account(Setting & Managing ID/PW)
- Barcode Scanner
- Q-path/Q-View
- Account Management
- Audit Trail
- Password Control
- SSD Encryption
- Number of Focal Points: 1 ~ 4
- Transmission Focal Zone Position selection
  - 1 ~ 8 Focal Points Selectable
- Hybrid Full Digital Beam-forming
- Continuous Dynamic Receive Focus / Aperture
- Multi-frequency / Wideband Technology
- Frequency Compounding (FSI)
- 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
- QuickScan
- Report Package
- Body Marker
- User Programmable Preset : Over 30 Presets
- User Programmable Key
  - 4 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
- Wireless Lan
- RIS Browser
- SDMR
- Frequency Range: 1 ~ 18MHz
- Displayed Imaging Depth (Probe dependent)
  - Minimum Depth of Field: 2cm
  - Maximum Depth of Field: 38cm

SYSTEM OPTIONS

- 4D
- 3D XI
- Strain+
- Stress Echo
- DICOM
- MultiVision (Spatial Compound Imaging)
- Auto IMT+
- ElastoScan
- Panoramic+
- XI STIC
- Needle Mate+
- EzExam+
- CW Function
- Cardiac Measurement
- Rus restricted mode
- DEU restricted mode
- RealisticVue
- 5D Follicle
- E-Strain
- 2D NT
- System Activation
- LaborAssist
- CW-Main Board (Include CW Part)
- Pencil PSA Board (Include Pencil Probe Connector)
- Cart
- Extended Power Pack
- Video Out (Video Signal Converting Box)
- CP-Skin
- Carrier Bag

DOCUMENTATION CAPABILITY

- ADVR™
- Font size controllable by Zoom dial in text mode
- On-board printing device control
- Selective printing on two connected printers
- SonoView
- Export Media: CD/DVD+R/-R/RW, USB Flash, External USB HDD
- Export Format: JPEG,BMP,TIFF,DICOM
- Print Function
- Patient list and data search
- Report save available
- Post image processing available
- Caliper measurement available
- DICOM

  DICOM 3.0 Compliant

  Service: Storage/Printer/Worklist/PPS/SC

  DICOM SR Structured Reports

OPERATING ENVIRONMENT

- Temperature: 10 ~ 35℃
- Humidity: 30 ~ 75%
- Pressure: 700 ~ 1060 hPa

LANGUAGE

- Display Language
  - English, German, French, Italian, Spanish, Chinese, Russian, Portuguese
- Input Language
  - English, German, French, Italian, Spanish, Chinese, Russian, Portuguese

SCAN MODE

- Simultaneous Mode : 3 Types
  - Off, Allow B/PWD, Allow B/C/PWD
- Auto Unfreeze While Dual Operation
- Change Window at Dual Mode
- 2D/C Live Mode
  - Left/ Up, Right/ Down
  - 2D/C Live left-Right Dual Only

- Freeze Action : 4 Types
  - None
  - Body Marker
  - Caliper
  - Measure
- End Exam Action : End exam Only, End exam and Patient

IMAGE PARAMETERS

- 2D Gain: 0 ~ 100%
- Power: 10 ~ 100%
- Edge Enhance: -3 ~ 3
- Frame Average: 0 ~ 15
- 2D Filter
- View area Control
- View area Steering
- Dynamic Range: 30~200 dB, User selectable in 1 dB
- increments
- Reject Level: 1 ~ 32
- Gray map : 13 types
- Color map: 15 types
- Trapezoidal Image
- U/D Flip, L/R Flip
- Frame Rate: Slow / Normal / Fast
- Frequency optimized setting: Pen(penetration) / Gen(general) / Res(resolution) pressure

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, RAW format) : 150,000
- Image Preview
- Cine Image Preview
- Recalling Image from the Clipboard
- Scrolling Timeline Memory
- Start and End Frame Selections for Loop Playback

PRE PROCESSING

- Acoustic Power Control (adjustable)
- Dynamic Aperture
- Dynamic Apodization
- Image View Area control
- 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
- M-mode Sweep Speed Control

- 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
- 3D / 4D Mode
  - Scan Quality
  - Volume Angle
- ElastoScan Mode
  - Frame Average
  - Frequency
  - Line Density

POST PROCESSING

- Frame Average
- Edge Enhancement / Blurring
- Gamma Curve
- Image Orientation (left/fight, up/down, rotation)
- White on black/black on white
- 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
- 3D
- 3D XI
- Accept ROI
- Chroma Map
- MagiCut™
- VOCAL
- XI VOCAL
- XI STIC

- ElastoScan Mode
  - E-Gain
  - Contrast
  - Color Map
  - Alpha Blending
  - Blending Level
  - Enhancement

IMAGE PROCESSING

- Digital Beamformer
- Tx Channels : 64
- Processing Channel : 286,720
- Imaging Depth: 2 ~ 30 cm
- Dynamic Receive Focus
- Dynamic Receive Aperture
- Tx Apodization
- Tx Pulse Shaping
- Adjustable Dynamic Range
- Adjustable Field of View
- Image Reverse: Left/Right, Up/Down
- Transmission Focus: 1 ~ 8 Focal Points Selectable;
  - Focus Position: 8 steps (probe independent)
- 256 shades of gray, 8 bits
- 16,777,216 colors, 8 bits for each RGB component

IMAGE ARCHIVE

- Archiving Format: DICOM
- Possibly exported to other format
- Archive Devices: HDD Image Storage, CD-RW Storage, DVD-RW Storage, USB Memory Stick, USB Hard Disk Drive

CINE MEMORY/IMAGE MEMORY

- CINE Gauge and Cine Image number display
- CINE Review Loop
- Selectable CINE Sequence for CINE Review (by Start Frame and End Frame)
- Measurements/Calculations & Annotations on CINE
- Available in all modes(include loop)
- Imaging Cine, for real-time acquisition and review of 2D
- After freezing immediate scrolling through Cine memory with the Track ball
- CINE memory: Max. 45,000 frames
- Loop memory: Max. 14,000 Lines

CONNECTIVITY

DICOM(OPTIONAL)

- DICOM 3.0 Compliant
- Ethernet Network Connection
- Archiving Format:
- DICOM with ultrasound raw data
- Capture Area: pre-settable for each print key
- Video Area
- Application Window
  Whole Screen
- Configurable Examination List Window, Patient Information Window, and Search/Create Patient Window
- Extended search dialog, auto search for patient in Search/Create Pts window
- Automatic generation of patient ID

- Request acknowledge of End Exam action
- Go directly screen from search
- Verify DICOM directory on removable media
- Format removable media (rewritable DVD)
- The currently selected dataflow
- All configured data flows
- The network structure tree
- The configured buttons data flows
- AVI, MPEG, and JPEG Export : DICOM Support
- DICOM Storage Commitment Push Model User
- DICOM Modality Performed Procedure Step User
- DICOM Printer User
- DICOM Store User
- DICOM Modality Worklist User
- DICOM Structured Report Cardiology, Vascular and OB/GY User
- Network Profile Manager
- Uncompression for DICOM Cine file
- DICOM QR
- DICOM Image Review
- 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
- VOILOUT Setup

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 DOPPLER 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

POWER DOPPLER 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

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

VOLUME MODE

- 3D
- 4D (Live 3D)
- Color 3D
- 3D XI
  - MSV
  - Oblique View
  - XI VOCAL
- MagiCut™
- Orientation Help
- Curved ROI
- 3D Cine
  - Rotation Angle: 30°/45°/60°/90°/180°/360°
  - Step Angle: 1°/3°/5°/15°
- 4D Cine
  - Cine Type: Volume, Image
  - Layout
  - Play Mode: Loop, Yoyo
  - Speed: Very Slow, Slow, Normal, Fast, Fastest
  - Trim Start, Trim End
  - Volume Index
- MPR
  - 2D
  - Render
  - Accept ROI
  - Init
  - Layout
  - Ref. Image: A/B/C/OH
  - 3D Rotation: -90°/90°/180°
  - Select
  - Position
  - Bias

- Mix
- Vol. Index
- Th. Low
- Transparency

- MSV
  - Layout
  - Ref. Image: A / B / C / MSV OH
  - Page
  - Init
  - Orientation Dot
  - Position
  - Bias
  - Selected Slice
  - Vol. Index
  - Slice Thick.
  - Ruler
- Oblique View
  - Layout
  - Auto Increment
  - OVIX™
  - Init
  - Clear Line
  - Cut Type: Line / Contour / Parallel / Plumb
  - Image Rotation: -90° / 90° / 180°
- VOCAL
  - Solid / General / Prostate / Cystic / Sphere / Manual
  - Init
  - Ref. Image: A / B / C
  - Step Angle: 12° / 18° / 30°
  - Start
  - Pole 1 / Pole2
- XI VOCAL
  - Solid / Cystic / General / Manual
  - Init
  - Ref. Image: A / B / C / Ref. Contour
  - Slice Direction
  - Start
  - Number of Slice
- Chroma Map
  - 2D Chroma Map: Map 1 ~ Map 10
  - 3D Chroma Map: Map 1 ~ Map 10
- Post Processing
  - Negative / Auto Contrast / Threshold / Sharpen / 3D CI
- Preset (Probe dependent)
  - Default / Surface / Skeleton / Extremity / Brain / User1~3
  - Load / Save / Rename / Reset
- ROI Size / ROI Position
- Rendering Preset: Default / Surface / Skeleton / Extremity / Brain / User1~3
- Scan Quality: Low, Med1, Med2, High
- Volume Angle: 10 ~ 90 (Probe dependent)
- XI STIC
  - Scan Time (7 ~ 15 sec)
  - Trimester (1Trim, 2Trim, 3Trim)
  - Speed (Very Slow, Slow, Normal, Fast, Fastest)
  - Vol. Index
- 5D Follicle
- RealisticVue

  - Light direction (9 directions)
  - Move light
  - Set color (Hue, Saturation, Lightness)

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

CALIPERS & GENERAL MEASUREMENTS

- 4 pairs of 2-D calipers available. Screen display: Distance between calipers for each pair Manual tracing in 2D distance
- Ellipse function: Up to 4 pairs of calipers Distance between calipers Ellipse circumference Ellipse area
- Trace function. Displays: Trace circumference Traced area

DOPPLER & GENERAL MEASUREMENTS

- Velocity
- Frequency
- Time
- Acceleration
- Acceleration Time
- Ratios
- A/B Ratio (Velocities/Frequency Ratio)
- Peak Systole/End Diastole (PS/ED Ratio)
- End Diastole/Peak Systole (ED/PS Ratio)
- Heart Rate
- AutoCalc Auto Doppler Trace function with automatic calculations
- TAMAX (Time Average Maximum Velocity)
- Volume Flow (TAMEAN and Vessel Area)
- PI (Pulsatility Index)
- RI (Resistivity Index)

PROBES

LINEAR ARRAY

LA3-16AD

- Linear Array probe
- Frequency(Center/Range) : 8.7MHz/ 3~16MHz
- Radius of curvature : Flat
- Field of view : 38.4mm
- Number of elements : 192
- Biopsy Guide : Available
- Application : Abdomen, MSK, Small Parts, Vascular, Obstetrics, Gynecology, Pediatric, Emergency

  Safety Class: BF

LN5-12

- Linear Array probe
- Frequency(Center/Range) : 8MHz/5~12 MHz
- Radius of curvature : Flat
- Field of view : 38.1 mm
- Number of elements : 128
- Biopsy Guide : Available
- Application : Abdomen, MSK, Small Parts, Vascular, Obstetrics, Gynecology, Pediatric
- Safety Class: BF

CONVEX ARRAY

CA2-8AD

- Curved Array probe
- Frequency(Center/Range) : 4.1MHz/2~8MHz
- Radius of curvature : 60.365 mm
- Field of view : 58 °
- Number of elements : 192
- Biopsy Guide : Available
- Application : Abdomen, Obstetrics, Gynecology, MSK, Pediatric, Vascular, Urology, Emergency

- Safety Class: BF

C2-8

- Curved Array probe
- Frequency(Center/Range) : 4.7MHz/2~8MHz
- Radius of curvature : 51.07 mm
- Field of view : 68.176 °
- Number of elements : 128
- Biopsy Guide : Available
- Application : Abdomen, Obstetrics, Gynecology, MSK, Pediatric, Vascular, Urology
- Safety Class: BF

CA4-10M

- Micro Curved Array probe
- Frequency(Center/Range) : 6.3MHz/4~10MHz
- Center frequency : 5.65MHz
- Radius of curvature : 14mm
- Field of view : 92°
- Number of elements : 128
- Biopsy Guide : Not available
- Application : Abdomen, MSK, Obstetrics, Gynecology, Pediatric, Vascular, Urology, Emergency

ENDOCAVITY

EVN4-9

- Endo-cavity probe
- Frequency(Center/Range) : 6.7MHz/4~9MHz
- Radius of curvature : 10.1mm
- Field of view : 148°
- Number of elements : 128
- Biopsy Guide : Available
- Application : Obstetrics, Gynecology, Urology
- Safety Class: BF

VOLUME (3D)

VN4-8

- 3D Curved Array probe
- Frequency(Center/Range) : 4.5MHz/4~8MHz
- Radius of curvature : 38.1mm
- Field of view : 77.2°
- Number of elements : 128
- Biopsy Guide : Available
- Application : Abdomen, Obstetrics, Gynecology, MSK, Pediatric, Vascular, Urology
- Safety Class: BF

EV2-10A

- Volume Endo-cavity probe
- Frequency(Center/Range) : 5.9MHz/2~10MHz
- Radius of curvature : 10.1mm
- Field of view : 150°
- Number of elements : 192
- Biopsy Guide : Available
- Application : Obstetrics, Gynecology, Urology
- Safety Class: BF

PHASED ARRAY

PN2-4

- Frequency(Center/Range) : 2.6MHz/2~4MHz
- Radius of curvature : Flat
- Field of view : 90 °
- Number of elements : 64

- Biopsy Guide : Not available
- Application : Abdomen, Cardiac, Vascular, TCD, Pediatric, Emergency
- Safety Class: BF

CONTINUOUS WAVE (PENCIL)

DP2B

- Frequency(Center/Range) : 2.0MHz/2MHz
- Biopsy Guide : Not Available
- 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

OBSTETRICS

- Fetal Biometry
- Fetal Cranium
- Fetal Long Bone
- Fetal others
- AFI
- CTAR
- Maternal Others
- Ratio
- Umbilical Artery
- Mid Cereb A
- 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 ~ 20)
- Mass 1 ~ 3
- Ovarian A (Right / Left)
- Uterine A (Right / Left)
- Pericystic Flow
- Endometrial Flow
- Endo. Polyp
- Ovarian Mass (Right / Left)
- Uterine Fibroid
- Cervical Fibroid
- Ectopic

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)

UROLOGY

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

FETAL ECHO

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

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)

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)

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)

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)

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
- RAR

TCD

- Rt./ Lt. ACA
- Rt./ Lt. MCA
- Rt./ Lt. PCA(P1)
- Rt./ Lt. PCA(P2)
- Rt./ Lt. DBA
- Rt./ Lt. MBA
- Rt./ Lt. PBA

- General
- Volume Flow

THYROID

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

BREAST

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

- Hip Angle (Right / Left)

MUSCULOSKELETAL (MSK)

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

CARDIAC

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

SAFTEY

CLASSIFICATIONS

User selectable, transducer and scanning mode

- IEC (International Electro technical Commission)
  - IEC/EN 60601-1: Ed. 3.0:2005
  - 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 60601-1-9: Ed. 1.0:2007
- 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 61157: Ed. 2.0:2007
- IEC/EN 62304: Ed. 1.0:2006
- IEC/EN 62366: Ed. 1.0:2007

- ISO(International Organization of Standards)
  - EN/ISO 10993-1: 2009
  - ISO 14971: 2007
- UL(Underwriters Laboratories)
  - UL 60601-1 / CAN/CSA 22.2 No.601.1-M90:1990
- CSA(Canadian Standards Association)
  - CAN/CSA 22.2 No.601.1-M90:1990, with R2003, with R2005
- EN(European Standard)
  - EN 980: 2008
  - EN 1041: 2008
- NEMA/AIUM
  - NEMA/AIUM UD-2: 2004
  - NEMA/AIUM UD-3: 2004
- SAFETY
  - Type of protection against electrical shock:
    - ✓ Class I
    - ✓ Internal powered equipment (battery pack)
  - Degree of protection against electrical shock (Patient connection): Type BF or CF Applied Part
- EMC
  - RF Emission CISPR 11: Class A
- Probe IPX: 7
- RoHS
- WEEE

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 10 % of maximum output
- Level is increased by 5% in each step.
- Mechanical Index (MI): 0.1~1.9 Range
- Thermal Index (TI): 0.1~6.0 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
- 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 Windows Explorer)

  Impossible to execute applications which is not allowed

  Impossible to access internet web pages

For more information, please don't hesitate to contact

SAMSUNG MEDISON

Phone: +82-2-2194-7068

Fax: +82-2-563-6528

E-Mail: jh0405.lee@samsungmedison.com