MEDISON

SONOACE X8

TECHNICAL SPECIFICATION

Version 2.01

SYSTEM OVERVIEW

PHYSICAL SPECIFICATION

- Height: 1278 mm
- Width: 510 mm
- Depth: 885 mm
- Weight: 101 kg

ELECTRICAL POWER

- Voltage: 100 ~ 120 / 200 ~ 240 VAC
- Frequency: 50/60 Hz

HOST PC

- Intel Core2Duo Processor 2GHz
- Main Memory: DDR2 SDRAM 2GB
- Integrated Hard drive: SATA HDD (Capacity: 500 GB)
- Integrated ODD: DVD Multi Recordable Driver
- LAN: 10/100/BASE-T
- USB2.0
- Windows XP Embedded OS

DESIGN

CONSOLE DESIGN

- Advanced ergonomic design
- Compact size and light weight
- High maneuverablility for portable examinations
- Tilt and swivel articulation arm monitor
- 4 active transducer ports for simultaneous transducer connection(include pencil probe)
- Front/Rear handle
- Attachable key panel
- Lighted alphanumeric keyboard
- Rotate control panel: Rotates 50°
- Dedicated keyboard control
- Central home position control(Movement control panel)
- Shortcuts for many functions
- Functional grouping of keys
- Positive feedback on control actuation
- Indicator lights identify activated keys
- Full alphanumeric QWERTY keyboard
  - Lighting of control panel labels
  - Peripherals controlled through the system keyboard (Backlit KBD/ Multilanguage KBD)
- High quality stereo audio speaker system
- Audio volume control
- Input and output connectors on the rear panel
- Rear compartment for storage of accessories
- 4 Back USB ports (for digital connection of peripherals)
- 2 Front USB ports(for used memory stick and external hard drive connection)
- On access to system power ON/OFF button
- 2-button footswitch

MONITOR

- 17" high resolution LCD non-interlace color monitor
- Resolution: 1280x1024x24bit
- High brightness & contrast

SYSTEM SPECIFICATION

APPLICATIONS

- Abdominal
- Obstetrical
- Obstetrical Early
- Neonatal Cephalic
- Gynecological and fertility
- Small parts (breast, thyroid, parathyroid, penis, testes)
- Infertility
- Abdominal surgery
- Renal
- Peripheral Vascular
- Pediatric
- Prostate
- Urology
- Breast
- Musculoskeletal
- Trans-Rectal
- Trans-Vaginal
- Adult Cardiology
- Pediatric Cardiology
- TCD
- Vascular
- Intraoperative

SCANNING METHODS

- Electronic Sector
- Electronic Convex
- Electronic Linear

TRANSDUCER TYPES

- Phased Array Type
- Convex Array Type
- Endocavity Type
- Micro-convex Array Type
- Linear Array
- Pencil Type
- Volume probes
  - Convex Array
  - Endocavity Type

OPERATING MODES

- B-Mode (2D)
- M-Mode
- Color M-Mode
- Free Angle M-Mode
- Color Doppler-Mode
- Power Doppler-Mode (PD)
- Directional Power Doppler-Mode (DPD)
- Pulse Wave Doppler-Mode (PW)
  - HPRF
- Continuous Wave Doppler-Mode (CW)
- Tissue Doppler Imaging-Mode (TDI)
- Panoramic View™
- Contrast Agent (Low-MI)
- Auto IMT™
- Volume-Mode (3D/4D)

- Static 3D
- 4D (Live 3D)
- MSV™
- Oblique View™
- XI STIC™

DISPLAY MODES

- Simultaneous Modes
  - B+M, B+PW, B+C, B+PD, B+DPD, B+TDI, B+CW, B+C+PW, B+PD+PW, B+DPD+PW, B+TDI+PW, B+C+M, Dual B+C, Dual B+PD
- Selectable Alternative Modes
  - B/M, B/PW, B/CW, B+C/PW, B+PD/PW, B+DPD/PW, B+TDI/PW, B+C/M, B+C/CW, B+PD/CW
- Colorized Modes
  - Colorized B, Colorized M, Colorized Doppler, Colorized 3D
- Time Line Display
  - Format: Top/Bottom or Side/Side
- Multi Image Display
  - Single Display
  - Dual Display
  - Quad Display
  - MSV Display
- Zoom
  - Write Zoom
  - Read Zoom (Magnification)

MAIN FEATURES

- Real time 64,512 channel 2D gray-scaled imaging with multi-beam receiving
- Full Spectrum Imaging (FSI)™
- Tissue Harmonic Imaging (THI)
- Pulse Inversion Harmonic Imaging
- Trapezoidal Imaging
- Tissue Doppler Imaging(TDI)
- Quick Scan™ (in B-mode, PW-mode)
- Speckle Reduction Filter (SRF)™
- Dynamic MR ™ / Dynamic MR PLUS ™
- Spatial Compounding Imaging (SCI) ™
- ElastoScan ™
- Contrast Agent (Low-MI)
- Panoramic View ™
- Auto IMT ™
- Static 3D only
  - B-Mode only
  - B + Color, B + PD, B + DPD mode
  - B + HDVI
  - XI STIC™
  - VOCAL™, XI VOCAL™
- 3D/4D
  - B + Dynamic MR / Dynamic MR PLUS
  - Multi Slice View(MSV)™
  - Oblique View™
  - Volume CT™
  - OVIX™, Multi-OVIX™
  - Volume Slice View™
  - Mirror View™
  - Inversion 3D
  - VCE (Volume Contrast Enhancement)
  - MagiCut

- Help function
- Account function (User Management)
- SonoView (Image Archive)
- Patient Information Database
- Image Archive integrated on CD/DVD
- Support for external USB2.0 HDD drive
- Cine for 5,242 frames
- Loop Review for 8,192 lines
- Auto Calc (Real time automatic Doppler calcs.)
- Doppler Auto Trace
- Stress Echo
- Strain Imaging
- Customization
  - Customizable Measurement Menu
  - Customizable Body Marker
  - Customizable User Keys
- Post-Measurement
- Measurement including Report for
  - OB, GYN, Carotid, Cardiac, Fetal Echo, Urology, LE Artery, UE Artery, LE Vein, Radiology, UE Vein, TCD, Thyroid, Breast, Testicle, Superficial, Pediatric Hips, MSK

SYSTEM OPTIONS

- 4D
- 3DXI™
- XI STIC™
- Dynamic MR™
- Dynamic MR PLUS™
- Spatial Compounding Imaging (SCI) ™
- Panoramic View™
- ElastoScan™
- Auto IMT™
- CW Functions
- Contrast Agent
- Cardiac Measurement
- DICOM
- Stress Echo
- Strain Image

PERIPHERAL OPTIONS

- Digital B/W Printer, DVR, Digital Color Printer, Digital Color Report Printer
- External USB Printer
- DVI-I Output Available for compatible devices

DISPLAY ANNOTATION

- MEDISON logo
- System logo (set in Admin mode)
- Institute name
- Doctor / Sonographer name (set in Admin mode)
- Frequency (set in Admin mode)
- Patient Info (ID, name, age, birth, gender)
- Date, Time
- Transducer name
- Mode name
- Frame rate (Hz)
- Application name / Preset name
- Image depth
- Power
- Acoustic output (MI & TI)
- B-mode
  - Dynamic range (dB) in 2-D
  - Frame average
  - Gain
  - Harmonic

- FSI
- Post-processing in 2-D (SRF / DMR)

- Color/PD Doppler-mode
  - ROI
  - Color map
  - Gain
  - Scale of PRF
  - Frame average
  - Filter
  - Sensitivity
- Spectral Doppler-mode
  - Gain
  - Filter
  - Scale of PRF
  - Sample volume size
  - Sample volume position
  - Angle
  - Base line
  - Time marker
  - Doppler meter
- M-mode
  - Gain
  - Dynamic range
  - Frame average
  - Power
  - FSI
  - M depth meter
  - M time meter
  - M line
- 3D/4D-mode
  - Function name
  - Mix
  - Threshold
  - ROI direction
  - Render mode
  - Ref. slice
  - Slice thickness
  - Cut type
  - VOCAL algorithm
  - VOCAL slice number
- Time Gain Compensation curve (TGC)
- Gray scale bar
- Transmit focus location
- Imaging Cine frame number
- Recorder status
- Zoom Indicator
- Zoom overview image in Read Zoom
- Body Marker
- Annotation
- Measurement results
- Display change key status
- ECG trace
- ECG trigger
- Heart rate

DISPLAY LEVEL

- Gray: 256 shades of gray, 8 bits
- Color: 16,777,216 colors, 8 bits for each RGB component

IMAGE ANNOTATIONS

- Screen annotation capability through alphanumeric keyboard
- Factory pre-set standard annotation terms
- Adjustable Annotation Arrow

BODYMARKERS

- Body markers organized in many anatomical groups
- Adjustable position, rotation and size of the body marker and transducer indicator on the screen

IMAGE PARAMETERS

2D MODE

- Gray scale: max 256 level (8bit)
- Scan line: max 1024 line
- Dynamic Range: 50~170dB, 1dB steps
- Reject: 1 ~ 32, 1 step
- Gray map: 13 step, 1 step
- Chroma map: 1 ~ 16 type
- Gain: 0 ~ 100, 1% step
- Power: 10 ~ 100, 5% step
- Frame average: 0 ~ 15, 1 step
- Frequency: Pen, Gen, Res
- Line density: High / Mid / Low
- Scan Area: 40 ~ 100%, 2% step
- Edge Enhance : -3~3, 1 step
- TGC: 8 slides
- Harmonic Imaging
  - Tissue Harmonic Imaging (THI)
  - Pulse Inversion
- Full Spectrum Imaging(FSI)™ : 1/2/3 step
- DynamicMR™ : on/off, 1/2/3/4/5 step
- DynamicMR PLUS™ : on/off, 1/2/3/4/5 step
- Speckle Reduction Filter(SRF)™ : on/off, 1/2/3 step
- Spatial Compound Imaging(SCI)™
- Transmit Focus
  - Predetermined points (max.8)
  - Multi-zone Focal point (max.4)
- Read zoom / Write zoom: 100~400%
- Tissue: Cystic / Solid / Normal / Adipose
- Orientation control: 0°/90°/180°/270°
- Panning: Positioning X, Positioning Y
- Flip: U/D, L/R
- Single / Dual / Quad display control
- QuickScan™
- Trapezoidal: on/off (with linear probe)
- Low MI: on/off
- Biopsy: on/off
- M-line: on/off

M MODE

- Dynamic Range: 50~170dB, 1dB steps
- Gray Scale: max. 256level (8bit)
- Sweep speed (2D & color): 60/120/180/240/300/360Hz, 6steps
- Frequency: Pen / Gen / Res
- Reject level: 1~32steps
- M edge enhancement: 13steps (-3~9)
- M colorization: 9 chroma map
- Loop Format:
  - Top-Bottom 3type: 60:40 / 50:50 / 40:60
  - Side by Side: 50:50
- Free Angle M mode
- M-color flow mode (Color M-mode)
  - Maximum PRF: 14kHz
  - Minimum PRF: 1.5kHz
  - Sweep speed: 60/120/180/240Hz (8.3 msec/column, 5.5 msec/column, 4.2 msec/column)

PW DOPPLER MODE

- Gray scale map: 5 steps
- PW wall filter: 4 steps (factory setup in 64 steps, from 0.04 PRF to 0.272 PRF, -3dB point)

- PRF: 1~23KHz
- Sample volume size: 0.5~15.0mm
- PW sweep speed: 60/120/180/240/300/360Hz, 6steps (13.2s/screen, 6.6s/screen, 4.4s/screen, 3.3s/screen, 2.6s/screen)
- Velocity scale range
  - 0°, Max. zero shift range: 5.0cm/s ~ 3.4m/s
  - 60°, Max. zero shift range: 10cm/s ~ 6.81m/s
- Angle correction: -70°~70°
- Loop cine size: Max. 8192 lines
- Display format: Top-Bottom, Side by Side
- Spectrum Invert: on/off
- Doppler Auto Trace
- Auto Calc: on/off
- Auto Calc direction: all / up / down
- HPRF: on/off
- QuickScan: scale, baseline, invert
- TDI, TDW: on/off
- Audio volume: 0~100%

COLOR DOPPLER MODE

- 8bit 256 color
- Color map: 8 maps
- Gain: 0~100%
- Frequency range: Pen, Gen (depending on probe)
- PRF: 600Hz~14KHz
- Velocity scale range: 2.4cm/s ~ 3.325m/s
- Ensemble: 8 ~ 31, step size 1
- Sensitivity: 8 ~ 31
- Frame Average: 0~9 level
- Maximum steerable angle +/- 25°
- Color display mode : Velocity, Power, Variance, Velocity + Variance
- Real-time triplex mode: B+CD/PW in any depth
- Tissue Doppler Image (TDI)

POWER DOPPLER MODE

- Color map: 1~8 map
- Gain: 0~100%
- Frequency range: Pen, Gen
- PRF: 600Hz~14KHz
- Velocity scale range: 2.4cm/s ~ 3.325m/s
- Ensemble: 8 ~ 31, step size 1
- Balance: 1~16
- Frame average: 0~9
- Mode: Directional Power Doppler (DPD) , Power Doppler (PD)

CW DOPPLER MODE

- Gray scale map: 1~8 steps
- Gain: 0~100%
- Power: 10~100%
- PRF: 1.5~43KHz
- CW sweep speed: 60/120/180/240/300/360Hz
- Loop cine size; max. 8192
- CW wall filter: 4 steps (factory setup in 64 steps, from 0.04 PRF to 0.272 PRF, -3dB point)
- Velocity scale range: 19.25cm/s ~ 8.23m/s
- Display format: Top-bottom 3 type Side by Side

- Spectrum Invert
- Doppler Auto Trace
- QuickScan
- Audio Volume : 0~100%

VOLUME MODE

- Live 3D, Static 3D, Freehand 3D
- MPR (Multi-Planar Rendering) display
- MSV (Multi-Slice View)™ display
- Oblique View ™
  - Static Line Oblique view
  - Dynamic Line Oblique view
  - Contour Oblique view
- Volume CT ™ (VCT)
  - Cube Volume CT
  - Cross Volume CT
- VOCAL ™
  - SHELL Histogram
- XI STIC™
  - General STIC
  - STIC + MSV
  - STIC + Oblique view
- 3D Dynamic MR(DMR)™
- Optimal volume resolution
- 3D rendering mode: Surface, Surface Smooth, Maximum, Minimum, X-ray, Mix mode of two render modes
- Volume Contrast Enhancement(VCE)™
  - 4D Image Save: max. 128 volumes
  - 4D Volume Save: max. 1,000 volumes
- SeeThru mode
- MagiCut Plus
- 3D Auto Contour

  Cartesian format 3D data save

IMAGE PROCESSING

IMAGE PROCESSING

- Digital Beamformer

  Tx & Rx: 64 channel
- Dynamic Apodization
- Dynamic Receive Focusing
- Dynamic Aperture
- Adjustable Dynamic Range: 60dB
- CW Beamformer

  Tx & Rx: 29 channel
- Flip: U/D, L/R
- Read Zoom
- Rotation: 0~360 degree

PRE PROCESSING

- 2D/M-mode
  - Gain, TGC, Dynamic Range, Transmission Focus Position, Transmission Focus Number, Transmission Frequency, Sweep Speed for M-Mode
- Color-mode
  - Gain, Velocity Range, Wall Filter, Ensemble, Spatial Filter, Frame Averaging, Baseline Shift, Smoothing Filter
- PW/CW-mode
  - Gain, Dynamic Range, Transmission Frequency, Velocity Scale/PRF, Wall Filter, Baseline Shift, Sweep Speed

POST PROCESSING

- 2D & PW QuickScan™
- SRF™
- SCI™
- Dynamic MR™ / Dynamic MR PLUS™
- Gray Maps

FRAMERATE

- Max. above 700 fps (dependent on transducer, field of view, depth and angle)

DEPTH SELECTION

- B-mode: from 2 to 30cm
  - Convex : 6~30cm
  - Endocavity: 3~18cm
  - Linear : 2~8.5cm
  - Phased Array : 6~30cm
- M-mode: from 2 to 30cm
  - Convex : 6~30cm(depends on transducer)
  - Linear: 2~8.5cm
  - Phased Array: 6~30cm

HIGH RESOLUTION ZOOM

- Read Zoom: 50~400 (%)
- Write Zoom: 100~400 (%)
- Available in full size deal and quad display in 2D and color Doppler mode

IMAGE DATA CONTROL

IMAGE CINE MEMORY

- Max cine memory:
  Image cine: 5242 frames
  Loop cine: 8192 lines
- Available in all modes (include loop)
- Imaging Cine for real-time acquisition and review of 2-D
- After freezing immediate scrolling through Cine memory with the Track ball,
- Number of frames or seconds of information in Cine memory depends on:
  - Mode in use
  - Image adjustment
  - Amount of information displayed (2-D image size, etc)
  - Memory allocated for Cine
- Measurement and calculation capability

DOCUMENTATION CAPABLITY

- On-board VCR controls
- On-board printing device control
- Selective printing on two connected printers
- SonoView II (Image Filing Package)
  - Image Filing Package: 2D images (including Doppler: motion data), Single volume, volume cine, DICOM files
  - Export Media: CD/DVD+R/-R/RW, USB Flash, USB HDD
  - Export Format: JPEG, BMP, TIFF, DICOM, Volume/Raw Data(to be updated), AVI on QuickTime
  - Print Function

- Capacity: 10BASE-T (Min.4000frame)
- Patient list and data search
- Report save available
- Compare old images with current exam
- Post image processing available
- Caliper measurement available

- 3D View
- DICOM 3.0 compatible
  - Class Service: Storage/Printer/ Worklist, Portable Mode, Display compensation(single frame)
  - DICOM SR (Structured Report)

MEASUREMENTS / CALCULATIONS

CALIPERS AND GENERAL MEASUREMENTS

- Distance
  - Up to 4 pairs
  - Distance between calipers for each pair
  - Manual trace in 2D distance
- Ellipse
  - Up to 4 pairs
  - Distance between calipers
  - Ellipse circumference
  - Ellipse area
- Trace
  - Trace circumference
  - Traced area
- Minimum distance between calipers
  - Trasducer type, depth and HRZ box setting dependent
- B-mode
  - Distance
  - Line trace
  - Angle
  - Area
  - Ellipse
  - Circumference
  - Volume
- M-mode
  - Distance
  - Time
  - Slope
- Doppler-mode
  - Time
  - Slope
  - Distance
- OB Measurements / Calculations
  - Fetal Biometry
    - GS
    - CRL
    - YS
    - BPD
    - OFD
    - HC(BPD, OFD)
    - APD
    - TAD
    - MAD(APD, TAD)
    - AC(APD, TAD)
    - FTA(APD, TADD)
    - ThC(APTD, TTD)
    - FL
    - SL
    - TTD
    - APTD

- APTD
- TTD
- BPD
- HC

- Fetal Long Bones
  - HUM
  - ULNA
  - TIB
  - RAD
  - FIB
  - CLAV
  - Vertebral
- Fetal Cranium
  - CEREB
  - OOD
  - IOD
  - CM
  - NF
  - NT
  - Lat Vent
  - NB
  - HW
- Fetal Others
  - Foot
  - Ear
  - MP
  - Lt. Kidney
  - Rt. Kidney
  - Lt. Renal AP
  - Rt. Renal AP
  - Pelvis
- EFW
- AFI
- CTAR
- PLI
- Umbilical Artery
- Mid Cereb Artery
- Lt. Uterine Artery
- Rt. Uterine Artery
- Placenta Artery
- Lt. Fetal Carotids
- Rt. Fetal Carotids
- Fetal Aorta
- Ductus Venosus
- Rt. Renal Artery
- Lt. Renal Artery
- Volume Flow
- Fetal Description
- Fetal Heart
- Fetal Brain
- Fetal Abdomen
- Biophysical Profile
- Maternal Survey
- Fetal Biometry
- Fetal Long Bones
- Fetal Cranium
- Fetal Others
- Ratio calculations
- Fetal Doppler trend graph
- Trend graph

▪ GYN Measurements / Calculations
- Uterus
- Cyst
- Rt. Ovary
- Lt. Ovary
- Rt. Follicles
- Lt. Follicles
- Mass 1
- Mass 2
- Mass 3
- Rt. Ovarian A
- Lt. Ovarian A
- Lt. Uterine A
- Rt. Uterine A
- Pericystic
- Endometrial
- Endo. Polyp
- Rt. Ovarian

- Lt. Ovarian
- Uterine Tumor 1
- Uterine Tumor 2
- Uterine Tumor 3
- Cervical Tumor
- Ectopic Pregnancy
- Abnormalites of uterus
- Environment

▪ Cardiac Measurements / Calculations

- LV/RV (2D)
- LV/RV (M)
- LV Vol.(MOD)
- LV Vol.(A/L)
- LV Vol.(Bullet)
- LV Mass
- RV (2D)
- RV (M)
- Ao / LA
- Ao / LA(M)
- RA (Rt.Atrium)
- LVOT
- RVOT
- AV (Aortic Valve)
- MV (M) (Mitral Valve)
- TV (Tricuspid Valve)
- PV (Pulmonic Valve)
- Tei Index
- Pulm. Veins (Pulmonary Veins)
- Hepatic Veins
- Tissue Doppler
- Qp:Qs (Qpulm:Qsys)
- PE (Pericardial Effusion)
- HR

▪ Vascular Measurements / Calculations

- Carotid
  - Indication
  - Subclavian A (Rt./Lt.)
  - Prox CCA (Rt./Lt.)
  - Mid CCA (Rt./Lt.)
  - Distal CCA (Rt./Lt.)
  - Bulb (Rt./Lt.)
  - Prox ICA (Rt./Lt.)
  - Mid ICA (Rt./Lt.)
  - Distal ICA (Rt./Lt.)
  - ECA (Rt./Lt.)
  - Vertebral A (Rt./Lt.)
  - General
  - Vol. Flow
  - HR
  - Vertebral
  - ICA/CCA (Rt./Lt.)
  - A/B (Rt./Lt.)
- LE Artery
  - CIA (Rt./Lt.)
  - IIA (Rt./Lt.)
  - EIA (Rt./Lt.)
  - CFA (Rt./Lt.)
  - SFA (Rt./Lt.)
  - DFA (Rt./Lt.)
  - Popliteal A (Rt./Lt.)
  - ATA (Rt./Lt.)
  - PTA (Rt./Lt.)
  - Peroneal A (Rt./Lt.)
  - DPA (Rt./Lt.)
  - MPA (Rt./Lt.)
  - LPA (Rt./Lt.)
  - Metatarsal A (Rt./Lt.)
  - Digital A (Rt./Lt.)
  - General
  - Vol. Flow
  - HR
  - Comment
- UE Artery
  - Subclavian A (Rt./Lt.)
  - Axillary A (Rt./Lt.)
  - Brachial A (Rt./Lt.)
  - Radial A (Rt./Lt.)
  - Ulnar A (Rt./Lt.)

- SPA (Rt./Lt.)
- General
- Vol. Flow
- HR
- Comment

- LE Vein
  - FV (Rt./Lt.)
  - GSV (Rt./Lt.)
  - POP (Rt./Lt.)
  - SSV (Rt./Lt.)
  - MPV (Rt./Lt.)
  - LPV (Rt./Lt.)
  - Metatarsal V (Rt./Lt.)
  - Digital V (Rt./Lt.)
  - General
  - Comment
- UE Vein
  - Internal Jugular V (Rt./Lt.)
  - Innominate V (Rt./Lt.)
  - Subclavian V (Rt./Lt.)
  - Axillary V (Rt./Lt.)
  - Brachial V (Rt./Lt.)
  - Cephalic V (Rt./Lt.)
  - Basilic V (Rt./Lt.)
  - Radial V (Rt./Lt.)
  - Ulnar V (Rt./Lt.)
  - Comment

- Fetal Heart Measurements / Calculations
  - 2D Echo
  - CTAR
  - Fetal M-mode
  - MPA
  - Duct Atriosus
  - IVC
  - Duct Venosus
  - Asc Aorta
  - Dsc Aorta
  - MV Inflow
  - MV Regurg
  - TV Inflow
  - TV Regurg
  - PLI
  - Tei Index
  - Fetal Heart
  - Environment
  - Comment

- Urology Measurements / Calculations
  - General
  - Bladder Vol.
  - WG Prostate Vol.
  - Predicted PSA by WG
  - T-Zone Vol.
  - Predicted PSA by T-Zone
  - Prostate Spec. Antigen
  - Residual Vol.
  - Lt. Renal Vol.
  - Rt. Renal Vol.
  - Digital Rectal Exam.
  - Transrectal US Prostate
  - Transrectal US Seminal Vesicles
  - Comment

- Small Parts Measurements / Calculations
  - Thyroid
    - Thyroid Vol. (Rt./Lt.)
    - Thyroid Flow (Rt./Lt.)
    - Comment
  - Breast
    - Mass1 (Rt./Lt.)
    - Mass2 (Rt./Lt.)
    - Mass3 (Rt./Lt.)
    - Mass4 (Rt./Lt.)
    - Mass5 (Rt./Lt.)
    - Mass6 (Rt./Lt.)
    - Mass7 (Rt./Lt.)
    - Mass8 (Rt./Lt.)
    - Mass9 (Rt./Lt.)

- Mass10 (Rt./Lt.)
- Breast Flow (Rt./Lt.)
- Comment

- Testicle
  - Testis Vol. (Rt./Lt.)
  - Testis Flow (Rt./Lt.)
  - Comment
- Superficial
  - Superficial Vol. (Rt./Lt.)
  - Superficial Flow (Rt./Lt.)
  - Comment

- TCD Measurements / Calculations
  - ACA (Rt./Lt.)
  - MCA (Rt./Lt.)
  - PCA(P1) (Rt./Lt.)
  - PCA(P2) (Rt./Lt.)
  - Dist Basilar A
  - Mid Basilar A
  - Prox Basilar A
  - General
  - Vol. Flow
  - Comment

- MSK Measurements / Calculations
  - Shoulder (Rt./Lt.)
  - Wrist (Rt./Lt.)
  - Knee (Rt./Lt.)
  - Ankle (Rt./Lt.)
  - Comment

- Pediatric Hips Measurements / Calculations
  - Hip Angle
  - Comment

TRANSDUCERS

PHASED ARRAY

P2-4AH

- Application: Adult cardiac, Aortric arch, Pediatric cardiac, Renal, Aorta, TCD
- Center Frequency: 3.5 [MHz]
- Number of Elements: 64
- Radius of Curvature: Flat
- Field of View: 90 [°]
- Biopsy guide not available
- Safety class: BF

P3-5AC

- Application: Adult cardiac, Aortic arch, Pediatric cardiac, renal, Aorta, TCD
- Center Frequency: 4.0 [MHz]
- Number of Elements: 64
- Radius of Curvature: Flat
- Field of View: 90 [°]
- Biopsy guide not available
- Safety class : BF

P2-4AA

- Application: Adult cardiac, Aortic arch, Pediatric cardiac, renal, Aorta, TCD
- Center Frequency: 2.56 [MHz]
- Number of Elements: 64
- Radius of Curvature: Flat
- Field of View: 90 [°]
- Biopsy guide not available
- Safety class : BF

P3-7AC

- Application: Adult cardiac, Aortic arch, Pediatric cardiac, renal, Aorta, TCD
- Center Frequency: 4.0 [MHz]
- Number of Elements: 64
- Radius of Curvature: Flat
- Field of View: 90 [°]
- Biopsy guide not available
- Safety class : BF

MPT4-7

- Application: cardiac
- Center Frequency: 5.0 [MHz]
- Number of Elements: 64
- Radius of Curvature: Flat
- Field of View: 10 [°]
- Biopsy guide not available
- Safety class : BF

LINEAR ARRAY

L5-12EP

- Application: Small Parts, Vascular, Musculoskeletal, Pediatric Abdomen
- Center Frequency: 7.5[MHz]
- Number of Elements: 128
- Radius of Curvature: Flat
- Field of View: 40[mm]
- Steer angle: +/- 15°
- Trapezoidal imaging
- Biopsy guide available
- Safety class : BF

L5-12EC

- Application: Small Parts, Vascular, Musculoskeletal, Pediatric Abdomen
- Center Frequency: 7.5[MHz]
- Number of Elements: 128
- Radius of Curvature: Flat
- Field of View: 40[mm]
- Steer angle: +/- 15°
- Trapezoidal imaging
- Biopsy guide available
- Safety class : BF

HL5-12ED

- Application: Small Parts, Vascular, Musculoskeletal, Pediatric Abdomen
- Center Frequency: 7.5[MHz]
- Number of Elements: 128
- Radius of Curvature: Flat
- Field of View: 40[mm]
- Steer angle: +/- 10°
- Trapezoidal imaging
- Biopsy guide available
- Safety class : BF

L5-12/50EP

- Application : Small parts, Vascular, Musculoskeletal, Pediatric Abdomen
- Center Frequency : 7.5[MHz]
- Number of Elements: 128
- Radius of Curvature : Flat
- Field of View : 50[mm]
- Steer angle: +/- 5°
- Trapezoidal imaging
- Biopsy guide available

- Safety class : BF

L4-7EL

- Application : Small parts, Vascular, Musculoskeletal, Pediatric Abdomen
- Center Frequency : 5.0[MHz]
- Number of Elements: 128
- Radius of Curvature : Flat
- Field of View : 40[mm]
- Trapezoidal imaging
- Biopsy guide available
- Safety class : BF

LN5-12

- Application : Small parts, Vascular, Musculoskeletal, Pediatric Abdomen
- Center Frequency : 7.5[MHz]
- Number of Elements: 128
- Radius of Curvature : Flat
- Field of View : 40[mm]
- Trapezoidal imaging
- Biopsy guide available
- Safety class : BF

CONVEX ARRAY

C2-5EL

- Application : Abdomen, OB, GYN
- Center Frequency : 3.2[MHz]
- Number of Elements: 128
- Radius of Curvature : 40[mm]
- Field of View : 76 [°]
- Biopsy guide available
- Safety class : BF

C3-7EP

- Application : Abdomen, OB, GYN
- Center Frequency : 4.8[MHz]
- Number of Elements: 128
- Radius of Curvature : 50[mm]
- Field of View : 70[°]
- Biopsy guide available
- Safety class : BF

C2-5EP

- Application: Abdomen, OB, GYN
- Center Frequency: 3.2Mhz
- Number of Elements: 128
- Radius of Curvature:40[mm]
- Field of View:75[°]
- Biopsy guide available
- Safety class : BF

C4-9/10ED

- Application: Pediatric, Abdomen, Hips
- Center Frequency: 6.5Mhz
- Number of Elements: 128
- Radius of Curvature:10[mm]
- Field of View:153[°]
- Biopsy guide available
- Safety class : BF

C2-8

- Application: Abdomen, OB, GYN
- Center Frequency: 4.5Mhz

- Number of Elements: 128
- Radius of Curvature:50[mm]
- Field of View:70[°]
- Biopsy guide available
- Safety class : BF

ENDOCAVITY

EV4-9/10ED

- Application: OB, GYN, Urology
- Center Frequency : 6.7[MHz]
- Number of Elements: 128
- Radius of Curvature : 10[mm]
- Field of view : 150[°]
- Biopsy guide available
- Safety class: BF

ER4-9/10ED

- Application: OB, GYN, Urology
- Center Frequency : 6.7[MHz]
- Number of Elements: 128
- Radius of Curvature : 10[mm]
- Field of view : 148[°]
- Biopsy guide available
- Safety class: BF

NEV4-9ES

- Application : OB, GYN, Urology
- Center Frequency : 6.5[MHz]
- Number of Elements: 128
- Radius of Curvature : 10[mm]
- Field of view : 150[°]
- Biopsy guide available
- Safety class: BF

NER4-9ES

- Application : OB, GYN, Urology
- Center Frequency : 6.5[MHz]
- Number of Elements: 128
- Radius of Curvature : 10[mm]
- Field of view : 150[°]
- Biopsy guide available
- Safety class: BF

VOLUME PROBES

3D2-6ET

- Application : Abdomen, OB, GYN
- Probe Type : 3D Curved Linear
- Center Frequency : 3.1[MHz]
- Number of Elements: 128
- Radius of Curvature : 40[mm]
- Field of view : 84[°]
- Biopsy guide available
- Safety class: BF

3D4-8ET

- Application : Abdomen, OB, GYN
- Probe Type : 3D Curved Linear
- Center Frequency : 4.5[MHz]
- Number of Elements: 128
- Radius of Curvature : 40[mm]
- Field of view : 84[°]
- Biopsy guide available
- Safety class: BF

3D4-8EK

- Application : Abdomen, OB, GYN
- Probe Type : 3D Curved Linear
- Center Frequency : 4.5[MHz]
- Number of Elements: 128
- Radius of Curvature : 40[mm]
- Field of view : 70[°]
- Biopsy guide available
- Safety class: BF

3D5-9EK

- Application : OB, GYN, Urology
- Probe Type : 3D Endo-cavity
- Center Frequency : 6.5[MHz]
- Number of Elements: 128
- Radius of Curvature : 12[mm]
- Field of view : 146[°]
- Biopsy guide available
- Safety class: BF

3D4-9ES

- Application : OB, GYN, Urology
- Probe Type : 3D Endo-cavity
- Center Frequency : 6.5[MHz]
- Number of Elements: 128
- Radius of Curvature : 12[mm]
- Field of view : 150[°]
- Biopsy guide available
- Safety class: BF

3DC2-6

- Application : Abdomen, OB, GYN
- Probe Type : 3D Curved Linear
- Center Frequency : 3.0[MHz]
- Number of Elements: 128
- Radius of Curvature : 40[mm]
- Field of view : 69[°]
- Biopsy guide available
- Safety class: BF

CONTINUOUS WAVE PROBES

CW2.0

- Application : Cardiac, TCD
- Probe Type : Pencil type
- Center Frequency : 2.0[MHz]
- Number of Elements: 1
- Safety class: BF

CW4.0

- Application : Cardiac, TCD
- Probe Type : Pencil type
- Center Frequency : 4.0 [MHz]
- Number of Elements: 1
- Safety class: BF

DEVICES & SIGNALS

OPTIONAL DEVICES

- Video Cassette Recorder (VCR) Analog
  - Panasonic MD835 S-VHS (NTSC & PAL)
  - Sony SV-9500MD
- Video Cassette Recorder (VCR) Digital

- Sony DVO-1000MD
- JVC(Vitor) BD-X201

- Video Page Printer (B/W)
  - Mitsubishi P-93WM
  - Sony UP-897MD
- Video Page Printer (Color)
  - Mitsubishi CP-910U
  - Sony UP-20
- USB Video Printer(B/W)
  - Sony UP-D897
  - Mitsubishi P-93D
  - Mitsubishi P-95DE
- USB Video Printer(Color)
  - Sony UP-D21MD, UP-D23MD
  - Mitsubishi CP-30DW, CP900DW
- USB Flash
  - Removable Flash Memory Media
- USB to RS232C Converter
  - FTDI FT232BM Compatible
- Foot Switch
  - The functions of Left &Right Foot Pedals can be selected in Setup Mode.
  - Freeze, Update, Record, Print, Store, 3D, ECG Trigger On/Off

PERIPHERAL SIGNALS

- S –VHS : In/Out
  - NTSC/PAL
  - Chrominance: 0.286Vpp/ 75 ohms/ unbalanced
  - Luminance: 1.0Vpp/ 75 ohms/ unbalanced
- VHS : In/Out
  - NTSC/PAL
  - 1.0Vpp/75ohms/unbalanced
- Video Patient Monitor : Out
  - Video Signal
  - NTSC/PAL
  - 1.22Vpp/75ohms/unbalanced
- Audio R/L : In/Out
  - 1ports
- VGA(DVI) : Out
  - 1 port
- DICOM : In/Out
  - 2 ports, 10-Base Type
- USB port : In/Out
  - 6 ports(front 2, rear 4)
- Microphone : In
  - 1 port
- Print Remote : Out
  - Echo printer trigger

OPERATING ENVIRONMENT

- Ambient temperature: 10°C–35°C (50°F–104°F)
- Relative humidity: Up to 75% non-condensing
- Pressure: 700~1060hPa
- Audible noise: 37dB
- Safety class: B or BF

SAFETY (FDA, CE ICE, ISO, BF, EMI)

CLASSIFICATIONS

- Type of protection against electrical shock: Class I
- Degree of protection against electrical shock (Patient connection): Type BF equipment
- Degree of protection against harmful ingress of water: Ordinary equipment
- Degree of safety of application in the presence of a flammable anesthetic material with air or with oxygen or nitrous oxide: Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
- Mode of operation: Continuous operation

ELECTROMECHANICAL SAFETY STANDARDS MET

- European Medical Device Directive [MDD 93/42/EEC]
- Medical Electrical Equipment, Part 1: General Requirements for Safety
  Safety of medical electrical equipment [EN 60601-1]
- Required for Canada. Medical Electrical Equipment: General Requirements for Safety [CAN/CSA 22.2 No.601.1-M90:1990, S-1:1994, B:1996]
- Medical electrical equipment, Part 1-2: General requirements for safety- Collateral standard: Electromagnetic compatibility- Requirements and tests [IEC/EN 60601-1-2]
- Medical Electrical Equipment - Particular Requirements for Safety: Ultrasonic Medical Diagnostic and Monitoring Equipment [IEC60601-2-37]
- Medical Electrical Equipment, Part 1-1: General Requirements for Safety – Collateral Standard: Safety Requirements for Medical Electrical Systems [IEC 60601-1-1]
- Medical Electrical Equipment, Part 1-4: General Requirements for Safety - Collateral Standard: Programmable Electrical Medical Systems & Medical Devices – Application of Risk Management to Medical Devices [IEC 60601-1-4:2000]
- Requirements for the Declaration of the Acoustic Output of Medical Diagnostic Ultrasound Equipment [IEC 61157:1992]
- AIUM/NEMA Acoustic Output Measurement Standard for Diagnostic Ultrasound Equipment [AIUM/NEMAUD-2: 2004]
- AIUM/NEMA Standard for Real-Time Display of Thermal and Mechanical Acoustic Output Indices on Diagnostic Ultrasound Equipment [AIUM/NEMAUD-3:2004]
- Biological evaluation of medical devices – Part 1: Evaluation and testing [EN/ISO 10993-1]

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, output Level is increased by 5% in each step.
- Mechanical Index (MI): 01~0.9 Range
- Thermal Index (TI): 0.1~5.0 Range
  - TIC – Thermal Index, Bone at Surface
  - TIB – Thermal Index, Bone at Focus
  - TIS – Thermal Index, Soft Tissue

MULTI LANGUAGE

MULTI LANGUAGE

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

INPUT LANGUAGE

- English, German, French, Spanish, Italian, Russian, Korean, Chinese, Japanese

For more information, please don't hesitate to contact MEDISON PM Team.
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