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performance data sheet

MyLabSigmaTM

Evo 3.0
Build F090100

Prepared by: Valentina Iorio
Approved by: Giovanni Altobelli

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1. Introduction

MyLab™Sigma is the latest generation portable ultrasound. It is a smart, portable, multidisciplinary ultrasound unit that allows you to bring ultrasound to where it is needed for a quick and complete diagnosis.

It offers extreme agility thanks to its onboard dual connector (4 with additional trolley multi-connector), and extensive workflow with zero-click automation tool for faster diagnostics.

It includes a unique built-in touchscreen in addition to its rotating and tilting monitor. Its ergonomic and innovative design along with its great portability further increase daily productivity and diagnostic efficiency.

1.1 Applications

The MyLabSigma ultrasound imaging system has been designed for the following applications:

- Abdominal
- Cephalic (Adult, Neonatal)
- Breast
- Cardiac (Adult, Pediatric)
- Gynecology
- Musculoskeletal 1.1
- Obstetric
- Pediatric
- Small Parts 1.4
- Thyroid
- Intraoperative/Interventional 1.2
- Vascular 1.3
- General Imaging (Neonatal, Pediatric, Adult)
- Urology

2. System Overview

- Ergonomic and compact cart designed for easy maneuverability
- LCD Main Screen with $\pm 90^\circ$ rotation 1.2
- Multilanguage touch screen keyboard 9.1
- 2 active probe connectors 7.1

- Integrated cooling system with very silent fans
- Cart with:
 - Four multidirectional wheels with breaking mechanism 27.3
 - Easy regulation of the height of the console-keyboard
 - Vertical displacement: ± 92 cm 27.1
 - On Board location for peripherals storage
 - 3 ports Multiconnector (optional)
 - Movable transducer holders 27.2
 - Movable Gel & ECG cable holders
 - Movable Transducer cables supports
 - cart dimensions 47 x 50 x up to 105,5 cm

2.1 Software

- Operating system: Microsoft® Windows 10
- Multilanguage Operation Menus (English, French, German, Italian, Spanish, Portuguese, Russian, Hungarian)
- Reports, calculations and measurements (application dependent)
- Start-up: less than 20s (with batteries) 5
- Shut-down: around 30s

2.2 Security

- Two account profiles: administrator and users
- Multiple users
- Login by user

- Weight: 45 g transducer head excluding cable and system connector, 390 g transducer complete
- Dimensions: 87 x 27 x 30 mm

8. Physical specifications

8.1 Dimensions

- Approximately 38 (w) x 9.8-34(h) x 38-40(d) cm (on site)

8.2 Weight

- Approximately 5.9 Kg without batteries and AC/DC power supply
- Approximately 6.4 Kg with AC/DC power supply and without batteries
- Approximately 7 kg with batteries and without AC/DC power supply
- Approximately 7.5 Kg with batteries and with AC/DC power supply

8.3 Noise value

Position	Level [dBA]
Operator seated	41.0
Operator standing	41.4
Patient	39.9

Operator seated: measurement point centered on the front surface of the ultrasound at a horizontal distance of 0.30m from the trackball and a height, with respect to the support plane of the ultrasound system, equal to 0.94m.

Operator standing: measurement point centered on the front surface of the ultrasound at a horizontal distance of 0.30m and a height of 1.37m, with respect to the support plane of the ultrasound system.

Patient: point of measurement is centered on the front surface of the scanner at a

horizontal distance of 0.60 m from it and at a height of 0.94 m from the floor

8.4 Video I/O

- HDMI output (auxiliary monitor)

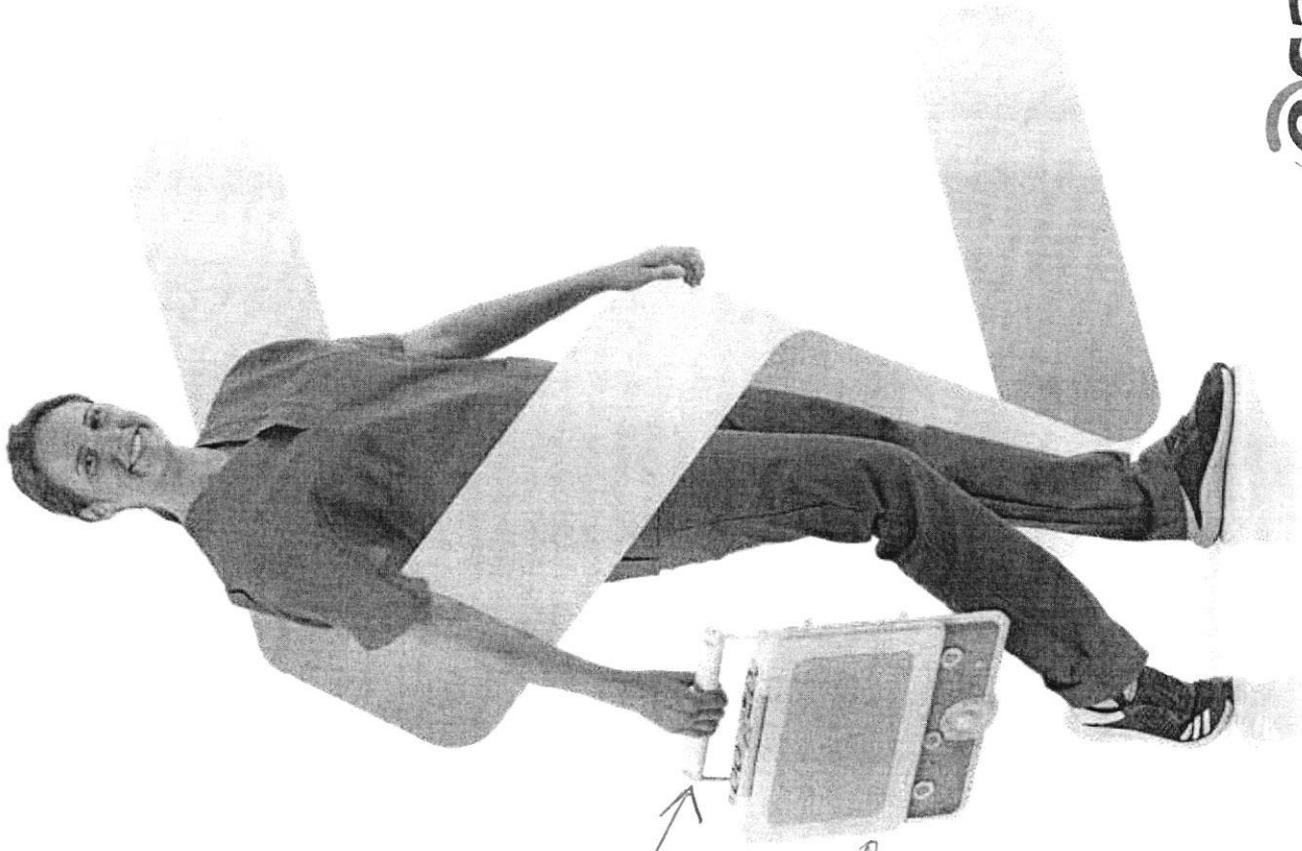
8.5 Power supply

- Optional batteries for 120 minutes of operating time
- Full charging 0-100%: 178 minutes
- Battery charger inside
- Voltage operative range: 100÷120V / 200÷240V
- Voltage limit range: 90÷132V / 180÷264V
- Working frequency range: 47÷63 Hz
- Power consumption: ≤200 VA
- Heating: ≤750,67 BTU/h
- extra battery option working time: > 240 minutes (PN 150000050 - available for CE Mark Countries - need to be used with trolley only - can be installed only if the system is already equipped with internal battery kit)

8.6 Power Cables

- Power cable with CEE socket
 - Socket: 510 IEC 320/C13 type: 10A-250V
 - Plug: VII (7) VII type; 10A-250V
 - Conductors: 3
 - Section: 1 mm²
 - Length: 2,5 m
- Power cable with CEI socket
 - Socket: 510 IEC 320/C13 type: 10A-250V
 - Plug: I/3 CEI 23-16 type; 10A-250V
 - Conductors: 3
 - Section: 1 mm²
 - Length: 2,5 m
- Power cable with NEMA socket

EFFICIENCY STRAIGHTAWAY



2.2

4.2

System Overview

MyLab has a built-in LCD screen: in this way, the system can be used as portable configuration. **MyLab** can be supplied with a trolley in its mobile configuration.

Portable Configuration

The console contains: the electronics, the control panel, the probe connectors (on the right), the input/output connectors for the ECG, the network and the peripherals and the security lock connector.

Fig. 3-1: Portable Configuration



The ON/OFF button is located on the upper left part of the control panel; the batteries status led is located on the lower right side of the control panel.

Loudspeakers are placed on the left and right upper corners of the panel.

The LCD safety push-buttons are laterally located. The LCD can be 90° rotated on both sides. 4.4.2

CAUTION

While rotating the LCD, please avoid any tilting movement on vertical axis.

The console is equipped with an handle located in the bottom side that can be used both to move the system and as sloping support in working conditions. 2.2.

2.5 Monitor

- 4.3 • 15,6" 16/9 Wide Screen full HD monitor 4.1
- Resolution: 1920x1080 32bit
- Colors: 16.7M
- image area fullscreenmode: 12,9"
- image area standardmode: 9,7"
- Image Resolution
 - Ultrasound Image Matrix: 1120*800
 - Brightness digital adjustment
- Information on Monitor:
 - Application
 - Selected Preset
 - Date and Hour
 - Transducer in Use
 - Transducer Orientation
 - Operating Frequency Range
 - Selected Central Frequency Range
 - Acoustic Power Output
 - Gray Map
 - Dynamic Range
 - Compression
 - Persistence
 - Enhancement
 - XView
 - MView
 - Depth
 - Focus (position/number)
 - Doppler Angle
 - CFM and Spectral Doppler Filter
 - Sample Volume Size and depth
 - Frame Rate
 - PRF
 - Gain 2D, CFM, PW/CW
 - Patient Data
 - Hospital Data
 - Body mark
 - Remote Digital Printing and Storage Status
 - Remote DICOM Storage Status
 - Heart Rate
 - Timer
 - Icons for XView, AutoAdjust, MView, Battery, Peripherals,

Media Storage options and Networks

- sweep time indication on trace

2.6 Image Modes

- B-Mode (2D) 12.1
- Colorize 2D, M-Mode and PW/CW
- 12.5 • PW/CW Doppler
 - HPRF 12.2
 - Non Imaging CW
 - CFM (Color Doppler) 12.3
 - Power Doppler 12.4
 - Directional Power Doppler (VeloPower) 12.1
- XFlow
- TEI (Tissue Enhancement Imaging) 12.6
- ECG
- Breathing Curve
- CMM (Compass M – Mode)
- TVM (Tissue Velocity Mapping)
- TPView 12.7
- MView on linear and convex and microconvex transducers
- VPan (Panoramic View)
- 3D/4D Imaging

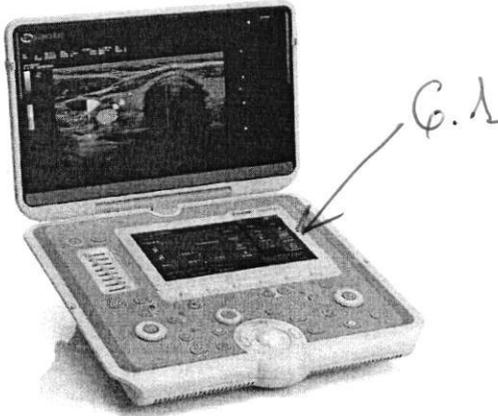
2D

- Field of view:
 - 19° ÷ 190° on Convex Array
 - 14° ÷ 89° on Phased Array
 - 16 ÷ 47 mm on Linear Array
 - 3° ÷ 60° on Linear Array with TP-View

(The values above are dependent on the transducer)

- Probe depending formats:
 - Phased Array
 - Linear Array (with steering and TPView)
 - Convex Array
- Depth: 22÷410 mm depending on probe
- Digital scan converter with bilinear interpolation process (860x600x8bits)
- Dynamic Range >250dB
- Digital Processing channel >3.000.000

2.3 Keyboard



- LEDs Brightness Digital adjustment
 - Ergonomic Key Layout
 - Ergonomic and adjustable back lighting control panel
-
- Primary controls easily accessible and logically grouped
 - Programmable keys *G.2*
 - eTouch: Macro Recorder
 - Trackball with two keys - PC mouse logic
 - Dedicated buttons to activate primary modalities:
 - B-Mode
 - M-Mode
 - 3D/4D
 - CFM
 - PW
 - CW
 - Direct multifunction knob to activate and control primary modalities:
 - Imaging Gain
 - Doppler Gain
 - Dedicated key for
 - System ON/OFF
 - End exam
 - General Setup Menu
 - Archive
 - eTouch
 - Application Measure
 - Generic Measurement
 - Line/Update (in Split modes)
 - Dual Imaging

- Image/Clip Storage
- Acquire (for advanced operations)
- Peripherals remote control
- AutoAdjust
- 8 TGC slide controls

Integrated Loudspeakers

2.4 Touch screen

- Capacitive Touch screen *G*
- Resolution: 1024x600px 32bit
- Brightness Digital Adjustment
- Dimension: 19.5x11.8cm (7.7x4.6inch) – Wide Screen 15/9 – 8.9" *G.1*
- Tools activation
- Physio (ECG signal)
- Exam Review
- Reverse
- Orientation
- Duplex/Triplex (in Split modes)
- XView
- MView
- Gray Map
- High Definition Zoom
- TPView
- Power
- TVM
- Color Map
- CMM
- ADM: Automatic Doppler Measurements
- B-Ref (for Split modes)
- B-Ref/Trace representation format
- Special functions buttons
- 6 direct encoders for Software Keys (up to 2 layers)
- Multilanguage Alphanumeric keyboard *G.1*
(US International, Italian, Danish, Norwegian, French, Swedish, German, Russian)
- Block of Keyboard and Touch Screen for cleanability

AutoAdjust

AutoAdjust enables the automatic adjustment of Imaging and Doppler parameters at the press of a button.

EasyMode

EasyMode allows user to adjust image display to match office preference

The system's context-sensitive user interface is designed to make imaging tasks simpler and quicker. While automated settings manage routine clinical needs, clinicians always retain control over all imaging parameters.

The EasyMode on-screen boosts workflow and efficiency By helping clinicians through the exam, it allows you to adapt and operate the system within a few seconds.

EasyMode is an unique feature which allows clinicians to optimize the image more quickly by operating with three simple slide keys :

- From Resolution to Penetration, manage the frequencies and enhancement automatically.
- From Contrast to Soft, manage the image dynamic's parameters.
- From Smooth to Sharp manage the xView algorithm

EasyColor

The EasyMode philosophy becomes available also for color mode CFM, allowing user to adjust the color signal by operating on three sliders:

- From Superficial to Deep, to manage color frequency
- From Fast to Slow, to manage PRF, wall filter, persistence
- From Large to Small, to manage HD-CFM, color smoothing and density

TVM

TVM (Tissue Velocity Mapping) provides a complete Wall Motion Analysis for both systolic and diastolic myocardial function evaluation.

- TVM displays color coded information on moving tissue in velocity mode. The Velocity mode

displays velocity distribution of moving myocardial tissue

- TVM can operate in
 - 2D imaging/TVM
 - M-Mode/MTVM
 - PW/Doppler/TV
 - Factory and user programmable presets for TVM • Requires the cardio module • Available on the SP2430, SP2442 and Transesophageal transducer ST2612

TPView

TPView enlarge the field of view without losing resolution and extending structures in breast, vascular and musculoskeletal applications.

- 60°
- Specially studied for breast, thyroid and vascular applications
- Available with all linear transducers

VPan

VPan (Panoramic Imaging) merges multiple B-Mode images in one complete panoramic image extending the field of view to entire organs.

- Auto fit of composite image
- Image Zoom
- Merging Level – realigning
- Frame marker
- Colorize
- Distance measurement
- Images can be saved to the patient's file
- CFM capability
- Rotation/Pan/Zoom

Directional Power Doppler (VeloPower)

- VeloPower - Directional Power Doppler
- Automatic algorithm for noise rejection
- Five VeloPower maps
- Analysis: Autocorrelation with use 8/16 selectable samples
- Frequency: User selectable from 2MHz up to 16.7MHz
- PRF: 125Hz up to 25KHz

2.7 Image on Display

- 256 gray levels or B-color levels
- Orientation: Left / Right, Up / Down
- Real Time Triplex mode (2D+CFM+PW)
- 2D+2D (w or w/o CFM or PWR_D)
- 2D+M-Mode (update or Real time Duplex)
- 2D+CFM+M-Mode (update)
- 2D+Doppler (update or Real time Duplex)
- 2D+CFM+Doppler (update or Real time Triplex)
- 2D+PWRD/VeloPower
- 2D+PWRD/VeloPower+Doppler (update or Real time Triplex)
- 2D+TVM
- 2D+TV
- 2D+TVM+(M-Mode or PW)
- 2D+TVM+TV
- Colorize on all combinations

2.8 Formats

- Imaging
 - Full / Split / Multiple
 - Full Screen
 - Left-Right / Up-Down
- Tracings
 - Split / Dual (scroll by line)
- CFM – Color On/Off in Freeze
- Quad view format (1 live+3 freeze)

2.9 Beam Former

- Ultrasound beam generation with:
 - Programmable number of cycles
 - Frequencies: up to 22 MHz *11.1*
- Up to 8 focal zones dynamically controlled
- 13.4* • Up to 15 steering angle dynamically switchable (on frame basis for Linear/Convex Probe)
- CW generation capability
- Programmable ultrasound beam aperture
- TEI

2.10 Calculation and Reports

- Standard Calculation Packages for:
 - Abdomen
 - Breast
 - Cardiology
 - Gynecology
 - Obstetric with programmable tables
 - Pediatric
 - Small Parts
 - Thyroid
 - Transcranial
 - Vascular
- Standard biometry reports & user programmable reports
- AutoNT
- All the reports are automatically stored in the patient file
- Automatic Doppler Measurements (ADM) and profiles (Real Time profiles extraction with Aliasing managing capability; Measurement on automatically detected hearth cycle or on selectable time slot for venous flow; Averaged values on selectable number of measurement; Selection of Full, Negative or Positive range; Add to report capability, Automatic point to point Doppler measurement)
- Refer to Operation Manual

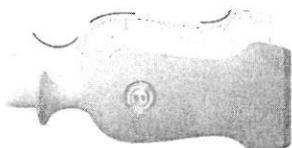
3. Archiving Capabilities

3.1 SAVE feature

- Still image (Full resolution)
- > 3 million of images
- Video clips (Full resolution)
- Doppler Video clips (Full resolution)
- Patient data, Annotations, Bodymarks and Measurement from the graphic overlay
- Reports

- Live Preview feature allows to scan in real-time while using anatomical references and scanning guidance

7. Transducers



7.1 Transducer Types

- Multifrequency Electronic Convex Array
- Multifrequency Electronic Volumetric Convex Array
- Multifrequency Electronic Linear Array
- Multifrequency Electronic Phased Array
- Multifrequency Electronic End-Fire Endocavity
- Multifrequency Electronic bi-plane for transrectal exams
- Multifrequency Electronic Volumetric End-Fire Array
- Pencil CW/PW

7.2 Transducers Technical Specifications

AC2541

- Type: Convex
- Technology: Wideband Electronic Array
- Operating Bandwidth: 1-8 MHz
- Max Field of view: 17° - 63°
- Radius of Curvature: 50 mm
- Footprint: 65x19mm
- Depth: 50- 414 mm
- B-M Frequencies: PEN-H, PEN-L, RES-H, GEN-M,
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- CFM-PW Frequencies: 1.8, 2.0, 2.5, 3.3 MHz

- CW: Not Available
- Steered Angle: Not Available
- Biopsy: 15°, 25°, 35°
- Weight: 95 g transducer head excluding cable and connector; 520 g complete transducer
- Dimensions: 101,4x66,7x34,7 mm

SI2C41

- Type: convex with 0° biopsy groove
- Technology: Wideband Electronic Convex Array
- Operating Bandwidth: 1-8MHz
- Max Field of view: 20° - 63°
- Radius of Curvature: 50mm
- Footprint: 68x23mm
- Depth: 50-357mm
- B-M Mode Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, RES-L
- CFM-PW Frequencies: 1.8, 2.0, 2.5, 3.3 MHz
- CW: Not Available
- Steered Angle: Not Available
- Biopsy: 0°, 5°, 15°
- Weight: 95g transducer head excluding cable and connector; 520g complete transducer
- Dimensions: 67x50x110 mm

SB2C41

- Type: Volumetric Convex
- Technology: Volumetric Wideband Electronic Convex
- Operative Bandwidth: 1-8MHz
- Max Field of view: 8° - 82°
- Radius of curvature: 40mm
- Footprint: 68x23mm
- Depth: 46-343mm
- B-Mode Frequencies: PEN-H, PEN-L, GEN-M, RES-L, RES-H

M

Parameter	Measurement	Displayed results
Heart Rate	Time	R-R interval, Heart rate
Systolic velocity /Diastolic velocity	Systolic velocity, Diastolic velocity	Systolic velocity, Diastolic velocity, Systolic velocity/Diastolic velocity
Cardiac FVI	Spectral envelope	FVI, Peak velocity, Reverse velocity, Peak and mean gradient
Vascular FVI	Spectral envelope	FVI, Pulsatility index, Resistive index, Reverse velocity, Diastolic velocity, Peak and mean velocity, Peak and mean gradient, Acceleration, Acceleration time, Systolic velocity/Diastolic velocity
Pulsatility index	Spectral envelope	FVI, Pulsatility index, Resistive index, Reverse velocity, Peak and mean velocity, Diastolic velocity
Resistive index	Systolic velocity, Diastolic velocity	Peak systolic velocity, Diastolic velocity, Resistive index
Flow (Trace)	Envelope, Contour	Time average velocity, Area, Volume,
Flow (Ellipse)	Envelope, Ellipse	Time average velocity, Area, Volume,
Flow (Diameter)	Envelope, Distance	Time average velocity, Diameter, Area, Volume
Slope	Velocity	Acceleration, PHT

Advanced Measurements

Refer to the Advanced Operations Manual for further information

Custom Measurements

Refer to the Advanced Operations Manual for further information

System Features

TEI *12.5*

TEI is using Harmonic Imaging technology that includes pulse inversion capability.

TEI (Tissue Enhancement Imaging) increases the signal-to-noise ratio and further enhances contrast resolution allowing the visualization of a high level of detail, even in difficult-to-scan patients.

The superb contrast and detailed resolution of TEI technology is based on the information always present in returning echoes.

- Touch Screen access and quick response time
- Available in combination with CFM, M-Mode, Power/VeloPower Doppler, TVM and CnTI

XView and XView+

XView elaborates the pattern of every single frame at the pixel level, eliminating speckle and noise artifacts, dynamically enhancing tissue margins, improving tissue conspicuity and increasing diagnostic confidence through real-time adaptive algorithm.

- Adaptive - During acquisition, XView uses different techniques in order to produce as little speckle as possible.
- Optimized - XView removes speckle, while the information necessary for the diagnostic image is preserved and enhanced

MView

MView consists in an ultrasound technique which applies beam-line steering and acquire several coplanar scans of an object from different view angles.

- Improved images quality by reducing the presence of artefacts, shadowing and speckle
- Available with all linear and convex/microconvex transducers.
- Up to 15 lines

12

Performance Data Sheet

Image Former

2D

- Field of view:
 - 19° + 190° on Convex Array
 - 14° + 89° on Phased Array
 - 16 + 47 mm on Linear Array
 - 3° + 60° on Linear Array with TP-View

(The values above are dependent on the transducer)

- Probe depending formats:
 - Phased Array
 - Linear Array (with steering and TPView)
 - Convex Array

13.2 Depth: 22+414 mm depending on probe

- Digital scan converter with bilinear interpolation process (860x600x8bits)
- Dynamic Range >300dB
- Dynamic Range min 3dB
- Digital Processing channel >4.000.000
- Frame rate: up to 2183 Hz 13.1

- Maps:
 - up to 10 (customizable) post processing gray maps
 - up to 20 Color Doppler color maps
 - up to 9 Power Doppler color maps

13.3 Zoom:

- High definition zoom (Real time)
- Variable magnification from 1.3 up to 8x (Real time / Frozen image)

- XView processing:
 - 3 custom algorithms (4 parameters each)
 - 9 custom algorithms (1 parameter each) for XView+
 - Steering (linear probes): up to ±30° with up to 15 step
- Gain and TGC AutoAdjust
- Biopsy kits and display line
- Capability to change gain on freezed images

M-Mode

- Sweep time: 1.7 + 12 sec
- Lines with CMM: up to 3

- Capability to change gain on freezed images. RAW DATA management CMM on archive.

COLOR DOPPLER

- Frequencies: 1.5 + 16.7 MHz
- Sampling PRF: 125 Hz + 23,2KHz
- Wall filters: 5 levels
- Data dynamic: 11 bit (+5 for intensity)
- Frame rate: up to 311 Hz
- Maps: up to 18
- Frame interpolation
- Interleave: up to 32 lines
- Samples: up to 512 lines
- Velocity range CFM 5.88m/s (P 1-5 @1,7MHz)
- Packet size: 4 + 16
- Format: ROI w/wo wider b/w
- Steering (linear probes): up to ±30° with up to 15 step 14.2
- HD CFM (up to 4 values of color spatial resolution)
- AutoAdjust

DOPPLER PW

- Frequencies: 1.7 + 16,7MHz
- PRF: 500 Hz + 41.7 KHz 15.2
- Multigate HPRF
- Wall filters: 50 + 1200 Hz (10 step)
- Stereophonic audio
- Sweep Time: 1.7 + 12 sec
- Spectrum: FFT with 64, 128 or 256 frequencies, interpolated up to 512 points (analysis time: ≤1 ms)
- Sample Size: 0,5 + 24 mm 15.3
- Angle correction : 0° to 90°
- Velocity range PW 17,6 m/s (P 1-5, 1.7 MHz)
- Steering (linear probes): up to ±30° with up to 15 step
- Doppler gain, baseline and scale AutoAdjust
- Capability to change Baseline and gain on frozen images
- Smart Doppler with Linear Probes

DOPPLER CW

- Frequencies: 2.1 + 8 MHz

REV A

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6

esaote
Creativity in Healthcare

13

- B-M Modes Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, RES-L, RES-M
- CFM-PW Frequencies: 4.2, 5, 5.6, 6.3, 7.1 MHz
- Weight: 45 g transducer head excluding cable and system connector, 390 g transducer complete
- CW: Not Available
- 2D-CnTi Frequencies: PEN-H, PEN-M, GEN-M, RES-M
- Steered Angle: not available
- Tilt: from -37° to 37°
- Biopsy: 20°, 35°
- Dimensions: 31x27x88 mm

Linear

L 3-11

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operating Bandwidth: 3-11 MHz
- Max Field of view: 9-39 mm (5°-60° Tp-View)
- Footprint: 49x12 mm
- Depth: 22-176 mm
- B-M Modes Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-L, RES-H
- CFM-PW Frequencies: 2.5, 3.3, 4.2, 5.0 MHz
- CW: Not Available
- Steered Angle: Maximum 28° (in Color mode)
- Biopsy: 25°, 30°, 50°
- Weight: 120 g transducer head excluding cable and system connector; 470 g complete transducer
- Dimension: 93x51x28 mm

L 4-15

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operative Bandwidth: 4-15MHz *16.2*
- Max field of view: 16-46 mm (3°-30° Tp-View)
- Footprint: 52x10mm
- Depth: 22-103 mm
- B-M Modes Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H *16.1*
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-L, RES-L, RES-M
- CFM-PW Frequencies: 4.2, 4.5, 5.0, 5.6, 6.3, 7.1, 8.3 MHz
- CW: Not Available
- Steered Angle: Maximum 21° (in Color mode)
- Biopsy: 40°, 60°
- Weight: 120 g transducer head excluding cable and connector, 475 g complete transducer
- Dimension: 88,5x58,1x27,2 mm

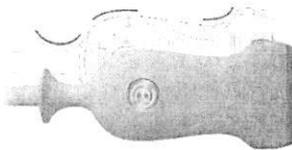
SL2325

- Bandwidth: 6 – 19 MHz
- Depth: 15-103 mm
- Field of view: 18 – 38 mm (4°-34° Tp-View)
- B-Mode Frequencies: PEN-L, PEN-H, GEN-M, RES-H
- TEI Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- CFM Frequencies: 6.3 – 8.3 – 10.0 – 12.5 MHz
- PW Frequencies: 6.3 – 8.3 – 10.0 – 12.5 MHz
- Steering angles: 7 steps
- Weight: 100 g
- Dimensions: 105 x 56.4 x 25.8 mm
- Biopsy angles: 45°/50°/60°/70°

SL3116 22MHz

- Live Preview feature allows to scan in real-time while using anatomical references and scanning guidance

7. Transducers



7.1 Transducer Types

- Multifrequency Electronic Convex Array
- Multifrequency Electronic Volumetric Convex Array
- Multifrequency Electronic Linear Array
- Multifrequency Electronic Phased Array
- Multifrequency Electronic End-Fire Endocavity
- Multifrequency Electronic bi-plane for transrectal exams
- Multifrequency Electronic Volumetric End-Fire Array
- Pencil CW/PW

7.2 Transducers Technical Specifications

AC2541

- Type: Convex
- Technology: Wideband Electronic Array
- Operating Bandwidth: 1-8 MHz *17.1*
- Max Field of view: 17° - 63°
- Radius of Curvature: 50 mm *17.1*
- Footprint: 65x19mm
- Depth: 50- 414 mm
- B-M Frequencies: PEN-H, PEN-L, RES-H, GEN-M,
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- CFM-PW Frequencies: 1.8, 2.0, 2.5, 3.3 MHz

- CW: Not Available
- Steered Angle: Not Available
- Biopsy: 15°, 25°, 35°
- Weight: 95 g transducer head excluding cable and connector; 520 g complete transducer
- Dimensions: 101,4x66,7x34,7 mm

SI2C41

- Type: convex with 0° biopsy groove
- Technology: Wideband Electronic Convex Array
- Operating Bandwidth: 1-8MHz
- Max Field of view: 20° - 63°
- Radius of Curvature: 50mm
- Footprint: 68x23mm
- Depth: 50-357mm
- B-M Mode Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, RES-L
- CFM-PW Frequencies: 1.8, 2.0, 2.5, 3.3 MHz
- CW: Not Available
- Steered Angle: Not Available
- Biopsy: 0°, 5°, 15°
- Weight: 95g transducer head excluding cable and connector; 520g complete transducer
- Dimensions: 67x50x110 mm

SB2C41

- Type: Volumetric Convex
- Technology: Volumetric Wideband Electronic Convex
- Operative Bandwidth: 1-8MHz
- Max Field of view: 8° - 82°
- Radius of curvature: 40mm
- Footprint: 68x23mm
- Depth: 46-343mm
- B-Mode Frequencies: PEN-H, PEN-L, GEN-M, RES-L, RES-H

- Report of QIMT with table reference

QAS

The QAS (Quality Arterial Stiffness) is a radio-frequency based realtime measurement of the distension of the blood vessel wall caused by a travelling Blood Pressure Wave originated by heart pumping.

- Accurate assessment of arterial vessel health condition.
- Stiffness parameters: CC, DC, α , β , PW
- Local Pressure Waveform

AutoNT

AutoNT is the dedicated software to automatically capture Nuchal Translucency measurement.

The image places a ROI within which the machine automatically recognizes the NT pattern and measures it accurately. The measure thus obtained can be reproduced and stored on the patient's report.

Auto OB

Automatic biometric software provides a precise automatic placement of the measure calipers involved in the particular measurement leaving the end user the last step to minor fine tuning and confirmation.

Automatic Biometry is available for the following measures:

- Head Circumference
- Biparietal Diameter (outer-inner / outer-outer)
- Abdominal Circumference
- Femur Length

Each measure can be configured as manual / automatic in the measure Editor

3D/4D

- Bi-Scan probes management
- Volume data acquisition
- Volume rendering reconstruction
- Real time modality (4D)
- Volume Rate: 40 volumes/second
- Depth Color Algorithm to improve 3D depth effect
- Multiplan sections with rotating planes

- Multiple tomographic slices
- Grey map on volume and slices for contrast improvement
- Measurement on bi-dimensional slices
- VRA
- 3D color
- XLight

XSTIC

XSTIC is a three-dimensional technique which allows the acquisition of a volume of data from the fetal heart, displayed as a cine loop of a single cardiac cycle

Needle Enhancement

Esaote Needle Enhancement Technology makes the needle especially visible during angled needle insertions for different clinical procedures.

Esaote advanced detection and visualization technology makes the needle clearly distinguishable from the surrounding tissues while maintaining top image quality of the target.

MicroV

The latest technology from Esaote that automatically recognizes the lowest speeds with ultra sensitivity for small vessels and slow flow detection. The benefits include:

- Tiny and slow flow vessel detection (more than standard modalities)
- Movement artifacts suppression
- No B-Mode interferences on Doppler-based signal
- Representation of pure Doppler information (no noise related to hyperechoic structures)

QPack

The QPack is a quantification tool fully integrated in the ultrasound.

Quantification like curve analysis of Contrast Perfusion (Wi/Wo) are plotted in Time on a graph using information coming from a generic sequence of frames and included in some ROIs defined by the End User.

Once acquired a sequence of frames, QPack performs (with reference to multiple user-defined regions of interest):

- CnTI Quantification

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- Offline capability
- Pause a study
- Visual comparison (saved images and clips can be compared both with each other and with archived images and clips).
- Compressed images and clips
- Cine Memory: up to 1.000 frames 22.1
- PC: ≥ 4 GByte
- Local drivers
 - Hard disk: 500 GB 19.1
- Internal Patient Database
- Visual comparison with real time images and clips
- User selectable filter for the database search
- Still images and loops storage in DICOM formats
- Real Time Archive capability for still frames and video clips
- Stored data thumbnails always displayed on two columns on the right side of the screen
- IHE Compliant
- Annotation/Bodymark/Measurements capability on previously stored images
- Possibility to share and review system archive from an external device (MyLabTablet license is needed)

3.2 Data export

- Image formats:
 - Standard output file formats (BMP, PNG, JPEG) 23.1
 - Native format
 - DICOM format, compressed (lossy, lossless) and uncompressed
- Clips formats:
 - AVI Codec: Microsoft® MPEG4-V2 and Microsoft® -Video1
 - Native format
 - DICOM format, compressed (lossy) and uncompressed

- Patient data, Annotations, Bodymarks and Measurements from the graphic overlays
- Reports in PDF and XLM

3.3 Connectivity

- Compatibility with External 5T USB Hard disk
- I/Os connectors
 - LAN RJ45 — 24.2
 - 4 USB: 24.3
- Dedicated connectors
 - Audio input/output (stereo): dedicated port for headset with microphone
 - ECG input
 - Wi-Fi (optional) 25.1

3.4 DICOM Connectivity

MyLabSigma system supports the following DICOM service classes:

- Verification service class as the SCU and SCP
- Modality Worklist management service class in the role of SCU
- Modality Performed Procedure Step (MPPS) class in the role of SCU
- Storage service class as a SCU
- Storage Commitment service class as SCU
- DICOM Print SCU
- DICOM Query retrieve SCU (multimodality)

Verification Service Class

As the SCU for the Verification SOP class, the system allows the user to test the availability of remote DICOM nodes from the DICOM configuration pages

As the SCP for the Verification SOP class, the system answers to verification requests coming in from remote DICOM nodes (when Storage Commitment is active)

- Scheduled Workflow,
- Echocardiography Workflow integrates ordering, scheduling, imaging acquisition, storage and viewing for digital echocardiography
- Cardiology Evidence Documents adds cardiology specific options to the Radiology ED profiles (specifies how data objects such as digital measurements are created, exchanged, and used)
- Portable Data for Imaging
- Patient Information Reconciliation

For more details, please refer to the updated version of the IHE Integration Statement available on the Esaote website (www.esaote.com).

3.6 Printing Capability

- Ink jet color and Laser-Color printers, 1, 2, 4, 6 and 9 images printed out on A4 format
- Thermal Digital B/W and Color Printers

3.7 MyLab Desk evo

Dedicated software (not for diagnostic use) for review, post-process and printing of exams performed with a MyLab™ ultrasound system on a PC Workstation working with Windows 10 Operative Systems.

- User interface extremely similar to the MyLabSigma user interface for convenience
- To import native Esaote file format
- To perform generic measurements
- For reviewing, modifying and printing the examinations (images)
- To export the data by using the standard features of the PC (burn on a CD/DVD, archiving on the local

HDD or store on an USB key in standard PC formats, transfer to e-mail, etc.)

3.8 MyLab Tablet

Mobile application which allows to remotely review images for non-diagnostic purpose on Tablet or mobile.

3.9 MyLab Remote*

Real-time image visualization and possibility to remotely control the system from mobile device. An adaptive layout has been implemented to reach the maximum confort at any resolution and screen size.

*(licence code 340065100)

4. Generic Measurements

The tables below list the measurements available in each/application mode (configurable and depending on the application.)

4.1 B-Mode

Parameter	Measurement	Displayed results
Distance	Distance	Distance
Distance ratio	Distance1, Distance2	Distance1, Distance2, Distance1/Distance2
% Distance reduction	Distance1, Distance2	Distance 1, Distance 2, (Distance1 - Distance2)/Distance1
Length (Vertex)	More distances	Global distance

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Advanced Controls

CLIP SETTINGS When this key is pressed, the system displays the following sub-menu keys:
Available also in Freeze.

2.1.1

CLIP SEC This toggle allows to change the clip duration in real time.
When the duration of the clip is set to unlimited, its acquisition ends when CLIP is pressed.

CLIP CYCLE When ECG is ON, it allows to change the clip trigger method into seconds instead of cycles.

BACK Goes back to main menu keeping the modifications.



COLORIZE This toggle changes the gamma of color for the gray scale to enhance the discrimination capabilities for B-Mode and M-Mode images or Doppler Spectrum.

Move the toggle up or down to change its value.

Available also in Freeze.

DENSITY This toggle optimizes lateral resolution for the best possible image quality.

ENHANCEMENT PERSISTENCE **ENHANCEMENT** and **PERSISTENCE** share the same toggle; tap it to swap between the two controls, move the toggle up/down to increase/decrease the value of the selected control (represented in blue).

ENHANCEMENT This toggle enhances the edges of boundaries to emphasize tissues interface.

PERSISTENCE changes the persistence level applied to the real time view: higher persistence levels increase the perception of the image, but decrease the discrimination of moving structures.

FOCUSES # This toggle changes the number of active focuses in transmission, increasing resolution for a specific area. Move the toggle up/down to increase/decrease the number of focal zones. A graphic caret corresponding to the focal zone position(s) is displayed on the side of the image. The frame rate decreases if more than one focal point is active.

NOTE *Several transmitting focuses can be activated; in this case, the relative distance between focuses is pre-established.*

- Weight: 45 g transducer head excluding cable and system connector, 390 g transducer complete
- Dimensions: 87 x 27 x 30 mm

8. Physical specifications

24.1

8.1 Dimensions

- Approximately 38 (w) x 9.8-34(h) x 38-40(d) cm (on site)

8.2 Weight

- Approximately 5.9 Kg without batteries and AC/DC power supply
- Approximately 6.4 Kg with AC/DC power supply and without batteries
- Approximately 7 kg with batteries and without AC/DC power supply
- Approximately 7.5 Kg with batteries and with AC/DC power supply

8.3 Noise value

Position	Level [dBA]
Operator seated	41.0
Operator standing	41.4
Patient	39.9

Operator seated: measurement point centered on the front surface of the ultrasound at a horizontal distance of 0.30m from the trackball and a height, with respect to the support plane of the ultrasound system, equal to 0.94m.

Operator standing: measurement point centered on the front surface of the ultrasound at a horizontal distance of 0.30m and a height of 1.37m, with respect to the support plane of the ultrasound system.

Patient: point of measurement is centered on the front surface of the scanner at a

horizontal distance of 0.60 m from it and at a height of 0.94 m from the floor

8.4 Video I/O

- HDMI output (auxiliary monitor)

8.5 Power supply

- Optional batteries for 120 minutes of operating time
- Full charging 0-100%: 178 minutes
- Battery charger inside
- Voltage operative range: 100÷120V / 200÷240V
- Voltage limit range: 90÷132V / 180÷264V
- Working frequency range: 47÷63 Hz
- Power consumption: ≤200 VA
- Heating: ≤750,67 BTU/h
- extra battery option working time: > 240 minutes (PN 150000050 - available for CE Mark Countries - need to be used with trolley only - can be installed only if the system is already equipped with internal battery kit)

8.6 Power Cables

- Power cable with CEE socket
 - Socket: 510 IEC 320/C13 type: 10A-250V
 - Plug: VII (7) VII type; 10A-250V
 - Conductors: 3
 - Section: 1 mm²
 - Length: 2,5 m
- Power cable with CEI socket
 - Socket: 510 IEC 320/C13 type: 10A-250V
 - Plug: I/3 CEI 23-16 type; 10A-250V
 - Conductors: 3
 - Section: 1 mm²
 - Length: 2,5 m
- Power cable with NEMA socket

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→ 26.1

SHOULDER

- BICIPITAL GROOVE
- SUBSCAPULARIS
- CORACOACROMIAL
- SUPRASPINATUS
- ABDUCTION
- INFRASPIN & LABRUM
- ACROMION CLAVICULAR
- GLENOHUMERAL

ELBOW

WRIST

HIP

KNEE

ANKLE

ABDOMINAL

PELVIC FLOOR

LUMBAR SPINE

CERVICAL SPINE

LONG TRANS

BICIPITAL GROOVE

Place the transducer in a longitudinal plane between the lesser and greater tuberosity over the bicipital groove

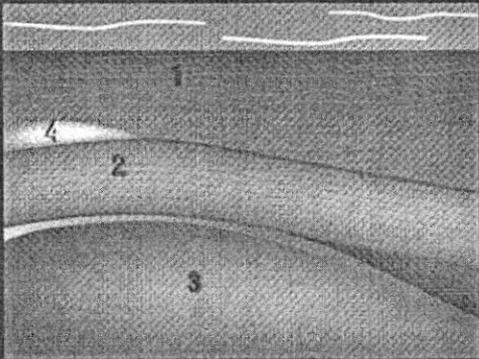
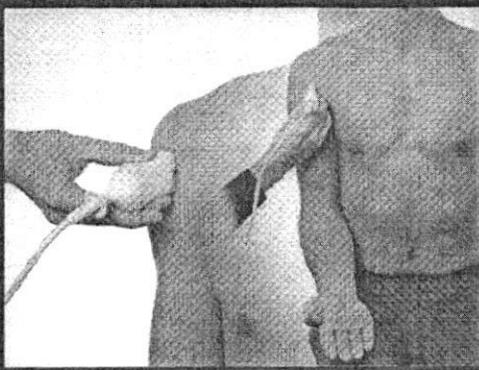
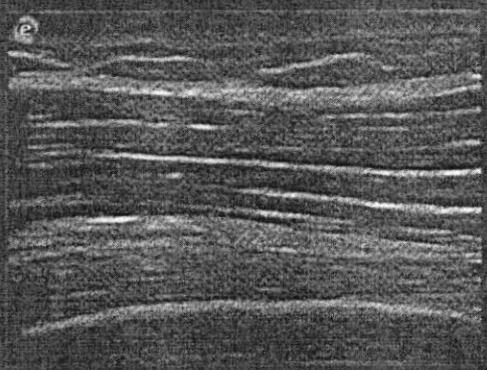
Reference:

- Greater tuberosity
- Lesser tuberosity
- Long head of the biceps tendon

Assessment:

- Long head of the biceps tendon
- Tendonsheath long head of the biceps tendon
- Subacromial subdeltoid bursa
- Bicipital groove

Deltoid muscle 2 Tendon long biceps 3 Humerus 4 Tendons sheath

26.1

26.1

2 Psl.

1.1 Muskuloskeletiniai tyrimai

1.4 Mažų dalių tyrimai;

1.2 Intervenciniai

1.3 Kraujagyslių tyrimai;

4.2 LCD monitorius pasukamas 90° į visas puses

9.1 Multilingvistinė raidinė-skaitinė klaviatūra

7.1 Dvi aktyvios daviklių jungtys;

27.3 Keturi vėžimėlio ratukai su stabdymo mechanizmu;

27.1 Vertikalus reguliavimas ± 92 cm;

27.2 Keičiamos padėties daviklių laikikliai;

5. Sistema užsikrauna per greičiau nei 20 sekundžių

3 psl.

2.1 Svoris 7 kg

3.1. Elektros tinklo jungtis

3.2. Darbo laikas su baterija 120 minučių

6 Psl.

4.2 LCD monitorius pasukamas 90° į visas puses

2.2 Konsolė turi rankeną apatinėje dalyje, skirtą jos transportavimui.

7 psl.

12.1 iki 12.7. B režimas, M režimas, spalvinio doplerio režimas, spalvinio galios doplerio režimas, spektrinis dopleris, audinių harmonikų vaizdavimas ir trapezoidinis vaizdavimas.

4.1. Monitorius 15,6“ plačiaekranis HD

4.3. Rezoliucija 1920x1080

8 Psl.

10.1 ergonomiškas ir valdomas panelės apšvietimas;

6.2. Programuojami klavišai;

6.1. Liečiamas ekranas 8,9“

9.1 Multilingvistinė raidinė-skaitinė klaviatūra

9 Psl.

8.1 Automatinis vaizdo optimizavimas mygtuko paspaudimu.

10 Psl.

11.1. Daviklių dažnio diapazonas 1-22 MHz

13.4. 15 spindulio pasukimo skenavimo linijų

12 Psl.

12.6 Audinių harmonikų vaizdavimo režimas

13 Psl.

13.2 Gylis 414mm

13.1 Kadru kaita 2183 Hz

13.3. Didelės raiškos vaizdo didinimas realiu laiku nuo 1,3 iki 8 kartų

14.2. Spindulio pasukimo kampas iki 15 žingsnių

15.1 Pulsinės bangos dopleris

15.2. impulsų pasikartojimo dažnis 41.7 KHz

14 Psl.

16.1 iki 16.3. Diapazonas 4-15 MHz, plotis 46 mm, 8 perdavimo dažniai

16 Psl.

18.1 Esaote speciali detekcijos ir vizualizacijos technologija padaro adatą itin matoma tarp aplinkinių audinių, tuo pačiu išlaikant aukščiausią vaizdo kokybę.

17 Psl.

22.1. Kadru atminties talpa 1000 kadru;

19.1. Kietojo disko atminties talpa 500 GB

23.1 Standartiniai formatai BMP, PNG, JPEG

24.2/24.3. LAN ir USB (4) jungtys

25.1. Wi-Fi prieiga;

18 Psl.

20.1. Mylab DeskEVO programinė įranga skirta vaizdų peržiūrai, matavimų atlikimui, archyvavimui, spausdinimui.

19 Psl.

21.1. Clip sec funkcija leidžia pasirinkti realaus vaizdo įrašymo trukmę. Jei vaizdo įrašymas nustatytas neribojamai, realus vaizdas bus nustotas įrašinėti tik paspaudus clip klavišą.

20 Psl.

24.1. HDMI jungtis

21 psl.

26.1. Monitoriuje vienu metu matomas skenuojamas vaizdas, anatominė informacija ir skenavimo nuorodos gautos iš duomenų bazės.