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Performance Data Sheet

MyLab

MY2025 EVO 1
Build F130002
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esaote
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Contents

1. Introduction

1.1 Applications

The MyLab™X8 ultrasound imaging system has been designed for the following applications:

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

2. System Overview

- Ergonomic and compact cart designed for easy maneuverability
- Adjustable control panel:
  - Lateral orientation: 50° left, 50° right; Transport and storage 180° right; number of right detents:.6, number of left detents: 6, 1 detent for transport
  - Vertical displacement: +/-260 mm
- Monitor displacement :
  - Rotation: left 80° - right 80° - front 20° - back 90°
  - Arm lateral orientation : right 236 mm – left 236 mm
- Back-illuminated control panel including alphanumeric keyboard
- Color LCD touchscreen with additional controls and mode-depending keys
- EasyMode allows user to adjust image display to match office preference
- EasyTrace automation tool guides clinician to ensure all information has been captured
- Four multidirectional wheels with breaking mechanism for easy mobility
- Lever for easy height adjustment of the console-keyboard
- Dedicated space for peripherals or printers
- Four transducer holders for more application flexibility
- Gel and ECG cable holders
- Integrated Gel Warmer (Optional)
- Transducer cables supports
- ECG cables supports
- Five active transducers connectors
- Integrated cooling system with ultra quiet fans
- Fully digital modular platform
- Factory presets (unlimited programmable) for every transducer and application

2.1 Software

- Operating system: Microsoft® Windows 10
- Multi-language Operation Menus (English, French, German, Italian, Spanish, Portuguese, Ukrainian, Russian, Chinese)
- Reports, calculations and measurements (application dependent)
- Boot up and shut down time
  - Start-up: < 1 min
  - < 15 sec from the stand-by
  - Shut-down: 15 seconds

2.2 Security

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

2.3 Keyboard

- Full sliding alphanumeric keyboard
- LED brightness digital adjustment
- Ergonomic key layout
- Ergonomic and adjustable back lighting control panel
- Primary controls easily accessible and logically grouped
- Programmable keys
- eTouch: Multiple function Macro recorder
- Trackball with three keys - PC mouse logic
- Dedicated buttons to activate primary modalities:
  - B-Mode
  - M-Mode
  - CFM
  - PWR D
  - PW
  - CW
- Direct multifunction knob to activate and control primary modalities:
  - B-Mode/M-Mode
  - Depth/Zoom
  - Freq/TEI
  - Color Gain
  - Steer
  - Doppler Gain
  - Body Mark
- Dedicated keys for
  - System ON/OFF
  - End exam
  - General Setup Menu
  - Archive
  - eTouch: Macro Recorder
  - Application Measurements
  - Generic Measurements
  - Line/Update (in Split modes)
  - Dual Imaging
  - Acquire (for advanced operations)
  - User Configurable buttons (1 – 2 – 3 – 4 + ACQUIRE)
  - AutoAdjust
  - 8 TGC (slide gain controls)

2.4 Touch screen

The MyLab™X8 's large tablet-style touch screen with different interactive zones, allows user to quickly browse and select the desired function, while the rest of the display remains unchanged.

- Resolution: 1280x800
- Brightness Digital Adjustment
- Dimension: 10.1"
- Innolux LCD – TFT Liquid Crystal Display module with LED Blacklight units
- Active area: 216,96 mm (H) x 135,6 mm (V) – Diagonal 257 mm
- Realtime and Archived ultrasound image visualization capability
- Tools activation
- Physio (ECG signal)
- Exam Review
- Image and clips Review from archive
- Image Reverse Up and Down
- Image Orientation left/right
- Duplex/Triplex (in Split modes)
- XView
- MView
- Gray Map
- microV
- XFlow
- Needle Enhancement
- High-Definition Zoom

- TPView
- PowerTVM
- Color Map
- EasyMode
- EasyTrace
- MyLibrary
- ElaXto
- QPack
- Fast Settings
- LVO
- ADM: Automatic Doppler Measurements
- B-Ref (for Split modes)
- B-Ref/Trace representation format
- Special functions buttons
- Six direct encoders for Software Keys (up to two layers)
- Multilanguage Alphanumeric keyboard (US International, Italian, Spanish, Danish, Norwegian, French, Swedish, German, Russian, Latin America, Hungarian)
- Block-off keyboard and touch screen for easy cleaning
- Real-time gestures workflow and image parameters modification/ optimization on touchscreen interface when live image is present.

2.5 Monitors

- BARCO 21,5" Wide Screen full HD LED monitor (Resolution: 1920x1080)
- Colors: 16.7M
- IPS Technology
- Image Resolution:
  - Image Matrix: 1200x760
  - Brightness digital adjustment
  - Articulated monitor arm

- 23.8" LED Monitor with integrated Optilight available as optional monitor. Wide Screen 16:9 (Resolution: 1920x1080)

- Information displayed 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
  - ElaXto
  - Sample Volume Size and depth
  - Frame Rate
  - PRF
  - Gain 2D, CFM, PW/CW
  - AutoGain
  - Patient Data
  - Hospital Data
  - Body mark

- Remote Digital Printing and Storage Status
- Remote DICOM Storage Status
- Heart Rate
- Timer
- Sweep time indication on trace
- Trackball action function
- Icons for Peripherals, Media Storage options, DICOM and Networks

2.6 Image Modes

- B-Mode (2D)
- Colorize 2D, M-Mode and PW/CW
- PW/CW Doppler
- Non Imaging CW
- CFM (Color Doppler)
- Power Doppler
- Directional Power Doppler (VeloPower)
- XFlow
- microV
- TEI (Tissue Enhancement Imaging)
- ECG
- EDR – (ECG Derived Breathing curve)
- CMM (Compass M[1]– Mode)
- TVM (Tissue Velocity Mapping)
- TPView
- MView on linear, convex and microconvex transducers
- VPan (Panoramic View)
- CPI (Combined Pulse Imaging)
- 3D/4D Imaging
- ElaXto

<u>2D</u>

- Field-of-view:
  - 7°-241° on Convex Array
  - 16° - 87° on Phased Array
  - 9 - 58 mm on Linear Array
  - 3° - 54° on Linear Array with TPView
- Depth:
  - 47 - 500 mm on Convex Array
  - 46 - 356 mm on Phased Array
  - 5 - 200 mm on Linear Array

(The values above are dependent on the transducer.)

- Transducer formats:
  - Phased Array
  - Linear Array (with steering and TPView)
  - Convex Array
- Digital scan converter 1200x760x32bits
- Frame rate: up to 6667Hz
- Maps:
  - up to 10 (customizable) post processing gray maps
  - up to 30 Color Doppler color maps
  - up to 9 Power Doppler color maps
  - up to 11 microV color maps
  - up to 6 XFlow color maps

- Zoom:
  - High-definition zoom (real-time)
  - Variable magnification (real time and frozen image)
  - Zoom level up to 50x on real-time image
  - Zoom level up to 10x on frozen image

  Zoom navigation window can be enabled both in PAN and HD zoom to represent the zoomed region dimension within the complete region.

- XView processing:
  - 3 custom algorithms (4 parameters each)

- 3 algorithms for XView+

- Steering (linear transducers) up to ± 21° with up to 14 steps
- Gain and TGC AutoAdjust
- Needle Guidance kits and display line
- Capability to change gain when image is frozen

M-Mode

- Sweep time: 1 16 sec
- Sweep speed: 17,7 - 247,9 mm/sec
- Lines with CMM: up to 3

Capability to change gain when image is frozen.
Raw data management CMM on archive.

COLOR DOPPLER

- Frequencies: 1,7 - 16,7MHz
- Sampling PRF: 125Hz - 23,2 KHz
- Wall filters: 5 levels, depending on PRF
- Data dynamic: 11 bit (+5 for intensity)
- CFM Max Frame Rate: 612 Hz
- TVM Max Frame Rate: 750 Hz
- Maps: up to 16
- Frame interpolation
- Interleave: up to 32 lines
- Samples: up to 512 lines
- Velocity range: from 0,01m/sec to 8,75 m/s
- Packet size: 4 - 16
- Format: ROI w/wo wider b/w
- Size: 5 - 95 % of max b/w size
- Steering (linear transducers) up to 15 steps, depending on transducer
- HD CFM (up to 4 values of color spatial resolution)

DOPPLER PW

- Frequencies: 1.7 - 16,7MHz
- PRF: 0.5 – 52,1kHz
- Multigate HPRF
- Wall filters: 65 - 1200 Hz (10 step)
- Stereophonic audio
- Sweep Time: 1 - 16 sec
- Spectrum: FFT with 64, 128 or 256 frequencies, interpolated up to 512 points (analysis time: £1 ms)
- Sample Size: 0,5 - 24 mm
- Velocity range: from 0,01m/s to 19,21 m/s (35,8 m/s with P1-5@ 1.7 MHz 60° correction)
- Angle correction : 0° to 90°
- Steering (linear transducers): up to 15 steps, depending on transducer
- Doppler gain and scale auto-adjustment

DOPPLER CW

- Frequencies: 1.9 - 8 MHz
- Sample frequency: up to 138,8kHz
- Wall filters: 40 - 900 Hz (8 steps)
- Stereophonic audio
- Sweep Time: 1 - 16 sec
- Spectrum: FFT with 64, 128 or 256 frequencies, interpolated up to 512 points (analysis time: £1 ms)
- Velocity range: up to 25,5 m/s (@ 2.1 MHz)
- Angle correction : 0° to 90°

2.7 Image on Display

- 8 bits (256) gray levels
- 24 bits (TRUE color) Color levels
- Dynamic range >350 dB
- 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+M-Mode+TVM (Update)
- 2D+CFM+M-Mode (update)
- 2D+PW (update or Real-time Duplex)
- 2D+ CFM+PW (update or Real-time Triplex)
- 2D+PWR_D/VeloPower

- 2D+PWR_D/VeloPower+ PW (update or Real time Triplex)
- 2D+TVM
- 2D+TV
- 2D+TVM+(M-Mode or PW)
- 2D+TVM+TV
- 2D+ElaXto
- Colorize on all combinations

2.8 Formats

- Imaging
  - Full / Split / Multiple
  - Left-Right / Up-Down
- Tracings
  - Split / Dual (scroll by line)
- CFM – Color On/Off in Freeze
- Dual 2D+CFM live
- Quad-view

2.9 Beam Former

- Ultrasound beam generation with:
  - CPI and arbitrary wave generation
  - Frequencies: up to 25MHz
- Full digital beam former with 12 bit A/D converter
- System digital processing channels >17.000.000
- Up to 16 Tx focal zones dynamically controlled
- Up to 64 Rx focal zones dynamically controlled
- Up to 15 steering angle dynamically switchable (on frame basis for Linear/Convex Transducer)
- CW generation capability
- Programmable ultrasound beam aperture
- Interpolated data RF lines generation capability
- TEI

2.10 Calculation and Reports

- Standard Calculation Packages for:
  - Abdomen
  - Breast
  - Cardiology
  - Gynecology
  - Obstetric with programmable tables
  - Urology
  - Pediatric
  - Small Parts
  - Thyroid
  - Transcranial
  - Vascular

- Standard biometry reports and user programmable reports
- Auto NT
- All 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)
- Video clips (Full resolution)
- Patient data, Annotations, Bodymarks and Measurement from the graphic overlay
- Reports

- Offline capability
- Capability to edit image/clip from Archive
- Multi View format (up to 16 images/clip)
- Visual comparison (saved images and clips can be compared both with each other and with archived images and clips
- Follow-up (saved images and clips can be compared with real-time acquisition)
- Compressed images and clips

RAW Data images and clips with postprocessing capabilities

- Cine Memory: 1 GB (>41000 frames)
- Clip Real-time unlimited
- PC RAM: 8 GB
- Local drives
    - SSD 512 GB for OS and archives (up to 100.000 images)
    - Expension to 5 TB HDD – optional

- Internal Patient Database
- User selectable filter for the database search
- Automatic cleaning capability

- Still images and loops storage in DICOM 3.0 formats
- Real-time Archive capability for still frames and video clips
- Stored data thumbnails always displayed on the right side of the screen
- Measuring capability on stored images
- IHE Compliant
- More than 400 user presets
- Annotation/measurements capability on previously stored images
- Raw data management

3.2 Data export

- Image formats:
    - Standard output file formats (BMP, PNG, JPEG, TIFF)
    - Native format
    - DICOM format, compressed (lossy, lossless) and uncompressed
- Clips formats:
    - AVI Codec: Microsoft WMV9, Microsoftâ MPEG4-V1, MPEG4-V2 and MS-Video1
    - Native format
    - DICOM format, compressed (lossy) and uncompressed
- Patient data, Annotations, Bodymarks and Measurements from the graphic overlays
- Reports (xml, html, PDF)
- Ability to send DICOM images and clips while the exam is ongoing
- RF DATA export capability for external post-processing, compatible with B-Mode functionality using all probes and length clip customizable (Optional)

3.3 Connectivity

- I/Os connectors
    - LAN RJ45
    - 2 USB 2.0 on keyboard control panel
    - 2 USB 3.0 on lateral panel
- Dedicated connectors
    - ECG input
- Wi-Fi (802.11.A,B,G,N)
- VPN compatibility.

  - Enhanced Data Security: VPN encrypts the data transmitted between the US device and the Hospital Server, protecting sensitive medical information from unauthorized access, cyberattacks, or data breaches.

  - Patient Privacy Compliance: A VPN helps ensure compliance with healthcare privacy

regulations, by securely handling patient data during transmission.

- Anonymized Data Transmission: A VPN can anonymize the IP addresses of devices involved in the data exchange, making it harder for malicious actors to identify specific devices or users.

- Remote Access: With a VPN, clinicians or technicians can securely access the ultrasound data remotely, whether from another department or an off-site location, improving efficiency and collaboration.

- Multiple Connection : VPN allows more ultrasound devices to be securely connected to the central server without additional infrastructure changes.

3.4 DICOM Connectivity

The MyLab™X8 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 (and SCP for query retrieve)
- 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

Modality Worklist Management Service Class

As the SCU for the Modality Worklist management SOP class, the system allows for querying the Information System obtaining information about scheduled exams and patient demographics

- The system allows for the following worklist workflow query:
  - Upon request on Touchscreen interface
  - “End of exam”, the system automatically opens the worklist interface
  - Automatic Query/Retrieve (Q/R) same patient previous exams available in PACS and local archive. Performed from Worklist when a patient has been selected using button "Select Exam and retrieve"

Modality Performed Procedure Step (MPPS)
As the SCU for the Modality Performed Procedure Step SOP class, the system automatically updates systems involved in the echocardiography workflow (CIS, PACS) about the status of the study

Storage Service Class
As the SCU for the Storage service class, the system supports transferring objects of the following SOP classes to remote DICOM nodes (PACSs):

- DICOM Ultrasound Image storage SOP class for transfer of 2D single frame images either uncompressed or using lossless or lossy image compression
- DICOM Ultrasound Multi-Frame Image Storage SOP class for the transfer of 2D clips using lossy image compression
- DICOM Secondary Capture Image Storage SOP class for the measurement information in a human readable format
- DICOM Comprehensive Structured Report Storage SOP class using the Adult Echocardiography Procedure Report template (TID 5200), the Vascular Ultrasound Procedure Report template (TID

5100) or the Ob-Gyn Ultrasound Procedure Report template (TID 5000), for the transfer of measurement information about Cardiac, Vascular, Abdominal (as an extension of the TID 5100) and Ob-Gyn exams.

- The system allows for the following storage modes:
  - "End of exam", the system automatically stores all image and measurement data in the background once the study has been closed
  - "On the fly", the system immediately stores all the acquired images
  - "Manual Image by image", the user can store a single image while viewing it
  - Manual", the system stores multiple exams as selected by the user in the background

Storage Commitment Service Class
As the SCU of the Storage Commitment service class, the system automatically requests the archive to take responsibility for the safekeeping of data that were stored using the above mentioned storage classes

Query/Retrieve Service Class
As the SCU of the Query/Retrieve service class, the system can query an archive and retrieve studies for reviewing them

For more details on provided DICOM services, please refer to the updated version of the DICOM Conformance Statement available on the Esaote website (www.esaote.com).

3.5 IHE Compliance

Integrating the Healthcare Enterprise (IHE) is an initiative by the healthcare industry and professionals to improve the way computer systems in healthcare share information.

IHE promotes the coordinated use of established standards such as DICOM and HL7, to address specific clinical needs in support of optimal patient care. Systems developed in accordance with IHE, communicate with one another better, are easier to implement and enable care providers to use information more effectively.
The MyLab™X8 complies with the following IHE profiles:

- 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
- Wireless

3.7 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.

3.8 eStreaming

Possibility to visualize the US image displayed on the system, in real-time on up to 5 clients simoultaneously, by inserting the IP address and the password on the client platform. Available in every context: BMode, CFM, Doppler, Archive, Follow-up).
Different display visualizations admitted:

- Full Layout
- Echo Image
- Anonymize (patient archive automatically hidden to the client devices)

Together with the ultrasound image there is the possibility to see a picture-in-picture camera on the second device, embedding environmental video together with the clinical one on the same display.

3.9 Raw Data Post-processing

Raw data management allows the post-processing of images and video clips previously acquired and saved into the archive.

4. Generic Measurements

The tables below list the measurements available in each/application mode (configurable and depending on the application.)
Possiblity to resize the measure panel of measurements over image.

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
Length (Trace)	Profile	Global distance
Area (Ellipse axes)	Area, Distance	Area, Perimeter
Area (Vertex)	More distances	Area, Perimeter
Area (Trace)	Profile	Area, Perimeter
Area ratio	Area1, Area2	Area1, Area2, Area1/ Area2
% Area reduction	Area1, Area2	Area1, Area 2, (Area 1 - Area 2)/Area1
Volume (Ellipse)	Distance, Area	Area, Volume
Volume (Trace)	Profile, Distance	Area, Distance, Volume
Biplane volume	Distance1, Distance2, Distance3	Distance1, Distance2, Distance3, Volume
Ellipse ratio	Two areas (ellipse based)	Two areas, Area1/Area2

4.2 M-Mode

Parameter	Measurement	Displayed results
Distance	Distance	Distance
Distance ratio	Distance1, Distance2	Distance1, Distance2, Distance1/Distance2
Time	Time	Time
Time ratio	Time1, Time2	Time1, Time 2, Time 1/Time 2
Heart Rate	Time	R-R interval, Heart rate
Velocity	Velocity	Distance, Time, Velocity
Velocity ratio	Velocity1, Velocity2	Velocity1, Velocity2, Velocity1/Velocity2

4.3 Doppler

Parameter	Measurement	Displayed results
Time	Time	Time
Time ratio	Time1, Time2	Time1, Time2, Time1/Time2
Velocity	Velocity	Instantaneous velocity
Cardiac Velocity	Velocity	Instantaneous velocity, Instantaneous gradient
Velocity ratio	Velocity1, Velocity2	Velocity1, Velocity2, Velocity1/Velocity 2
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

Parameter	Measurement	Displayed results
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

4.4 Advanced Measurements

Refer to the Advanced Operations Manual for further information.

4.5 Custom Measurements

Refer to the Advanced Operations Manual for further information.

5. System Features

5.1 TEI

TEI (Tissue Enhancement Imaging) is using Harmonic Imaging technology that includes pulse inversion capability.
TEI (Tissue Enhancement Imaging) improves the signal-to-noise ratio and 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.

5.2 MView

MView is an ultrasound technique which applies beam-line steering and acquires several coplanar scans of an organ from different view angles.
Improves image quality by reducing artifacts, shadowing and speckles.
Available with all linear and convex/microconvex transducers.
Up to 15 Lines.

5.3 XView / XView+

XView / XView+ enhances the pattern of every 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 / XView+ uses different techniques in order to produce as little speckle as possible
- Optimized - XView / XView+ removes speckle, while the information necessary for the diagnostic image is preserved and enhanced

5.4 AutoAdjust

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

5.5 eScan: AutoAdjust Real-time

Automatically calibrate the US Image Gray level continuously without the need to repetitively push the <AUTO> button on control panel.
Different algorithm calibrations are available for Cardiac and GI/OBGYN applications.
The offset level is adjustable with the gain knob (from -10 to 10 dB). Available in BMode (Fund/TEI).

5.6 eSpeed: speed of sound regulation

Possibility to modify the speed of sound value, in order to have better better focalization on the lateral direction. eSpeed index range from -14 (1400 m/s) to 16 (1800 m/s).

5.7 EasyMode

The MyLab™X8's context-sensitive user interface is designed to make imaging tasks simpler and quicker. While automated settings manage routine clinical needs, clinicans always retain control over all imaging parameters. The EasyMode on-screen boosts workflow and efficiency By helping clinicans through the exam, it allows you to adapt and operate the system within a few seconds.

EasyMode is an unique feature which allows clinicans 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

5.8 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

5.9 EasyTrace

Vascular automatic optimization that corrects the position and angle of color box and position and sample volume following the course of the vessel. Available in B+CFM, B+CFM+PW.

5.10 TPView

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

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

5.11 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
- VPAN measurement capability > 60 cm
- Images can be saved to the patient's file
- CFM capability
- Rotation/Pan/Zoom

5.12 Directional Power Doppler (VeloPower)

- VeloPower - Directional Power Doppler
- Automatic algorithm for noise rejection
- 9 Power maps
- Analysis: Autocorrelation with use 8/16 selectable samples
- Frequency: User selectable from 1,7MHz up to 16.7MHz
- PRF: 125Hz up to 23,2KHz
- Motion Discrimination Filter: 3 levels (Min – Med – Max)
- Processing Parameters:
  - Persistence: 10 Levels
  - Smoothing: Low, Med & Max
  - Moving Artifact Suppression: 5 levels
  - Gain: 0 to 255
- Post Processing Parameters:
  - Correlation
  - Rejection
  - Saturation
  - Grey Maps
- Electronic Steering (Linear Transducers ±30° maximum depending on transducer)
  - Read and scrolling Pan Zoom with user adjustable ROI (max. magnification factor 8x)
- Information on monitor:
  - Selected Frequency
  - PRF and HPRF
  - Color Map
  - Filter
  - Gain

5.13 XFlow

XFlow technology provides extraordinary flow sensitivity and spatial resolution. XFlow gives direct visualization of blood echoes, extending the wideband resolution, high frame rate and wide dynamic range of blood flow. High sensitivity in detecting slow flow.

5.14 Bi-rads, Ti-rads

- Breast and Thyroid lesion scoring following American College of Radiology indications
- Ti-Rads: scoring is determined from five categories, higher the cumulative score is, higher the TR level and likelihood of malignancy
- Bi-Rads: The Breast Imaging Reporting and Data System (BI-RADS®) is a standardized system of reporting breast pathology as seen on mammogram, ultrasound, and magnetic resonance imaging. It encourages consistency between reports and facilitates clear communication between the radiologist and other physicians by providing a lexicon of descriptors, a reporting structure that relates assessment categories to management recommendations, and a framework for data collection and auditing.
  The reporting can be performed directly on the touch screen (with the aid of the displayed nodule on the screen) or from the worksheet.

5.15 AVF

AVF technology is able to managed automatically B-mode image optimization without any means of manual focus position indicator on the image. Intelligent algorithm is used to control optimal auto-focus on the system processing providing optimized image resolution/homogeneity according imaging physical parameters. Used in combination with easyMode, permit to reduce the user manual parameters modification.

5.16 BrightFlow

BrightFlow provide a 3D color effect to enhance vessel rendering visualization. In color setting, are available 8 dedicated colormaps.
BrightFlow is available on all transducers and color processing CFM, PWRD and MicroV.

6. System Options

6.1 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)
- Increased Fluidity and temporal resolution with microV HFR (High Frame Rate)

6.2 MicroE

MicroEnhancement of hyperechoic structures:

- Detection is based on intelligent analysis and enhancement is highlighted using orange/blue colorization when detected small hyperechoic round strucutre.

6.3 Needle Enhancement

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

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

6.4 CnTI

CnTI (Contrast Tissue Enhancement Imaging) is using Contrast Harmonic imaging. Contrast Tuned Imaging used in combination with ultrasound contrast agents enhances the B-Mode imaging modalities in Low MI (Mechanical Index) with real-time techniques:

- Combination of Low MI and High MI for maximum performances and customization of the workflow
- Programmable high-power Flash
- Color overlay on b/w background
- Display of DP (Derated Pressure), which represents the peak of the negative pressure applied in tissues
- Chronometer (mm:ss) to control the exam duration. It is possible to activate or reset it
- Real-time clips acquisition and storing allowing to record the full examination

6.5 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 (Up to 8 ROI).
Breathing motion compensation is also available, to compensate the patient's movements during contrast examination.

Once acquired a sequence of frames, or a single frame, QPack performs (with reference to multiple user-defined regions of interest):
- CnTI Quantification
- Doppler (PWD, XFlow, MicroV) Quantification

Measures in CnTi
- ROI Area
(With ellipse axis length is used)
- Fitting Model y=Ae-Bt
(With adjustable contrast arrival detection)
- CEUS Intensity Peak (PI)
- Time To Peak (TTP)
- Area Under the Curve (AUC)

Measures in Color Doppler
- ROI Area (with ellipse axis length is used)
- RATIO Curves
- RATIO Curve peak

QPack tool is available in single and dual mode.

6.6 eDoppler

Automatic correction of the doppler angle, box position and steering, sample volume position and steering, for a fast and optimized calculation. Available on convex, linear and phased array probes.

6.7 QIMT

The QIMT (Quality Intima Media Thickness) calculation automatically measures the Carotid Intima-media thickness in real-time, using radio frequency signal. The calculated value is displayed on a graph including patient's expected values:

- Direct analysis of the radiofrequency signal
- Standard deviation real time visualization
- Add to report capability
- Dedicated report with graph

6.8 QAS

QAS (Qaulity 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

6.9 AutoNT

Automatic detection of nuchal translucency

6.10 AutoIT

Automatic detection of intracranial translucency

6.11 AutoOB

Automatic biometric software, powered by Artificial Intelligence, automatically recognize

the scan plane under assessment (following OB guidelines) and provides the related measurement leaving to the end user the last step for minor fine tuning and confirmation. Automatic scan plan detection enhances the exam workflow by identifying the associated measurements displayed on the touchscreen with A.I. logo.

Automatic Biometry is available for the following measures:

- Head Circumference
- Biparietal Diameter (outer-inner / outer-outer)
- Abdominal Circumference
- Femur Length
- Ulna Lenght (UL)
- Radio Length (RL)
- Humerus Lenght (HL)
- Tibia Lenght (TL)
- Fibula Length (FIB)
- Crown Rump Lenght (CRL)

The automatic scanplane detection, based on A.I., can recognize the following planes:

- TransThalamic - TransVentricular
- TransCerebellar
- Profile Crown Rump
- Profile NT
- Fetal Bones

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

6.12 3D/4D

- FreeHand 3D function to manage volumetric acquisition and post-processing 3D with conventional transducers
- Volumetric transducers management
- Volume data acquisition
- Volume rendering reconstruction Depth Color Algorithm to improve 3D depth effect
- Multiplanar layout with rotating planes
- TMI (Tomographic Mode Imaging)
- Grey map on volume and slices for contrast improvement

- Volumetric transducers management
- Volume data acquisition
- Volume rendering reconstruction
- Real-time modality (4D)
- Volume Rate: 40 volumes/second
- Depth Color Algorithm to improve 3D depth effect
- Multiplanar layout with rotating planes
- TMI (Tomographic Mode Imaging)
- Grey map on volume and TSI (Thick Slice Imaging) for contrast improvement
- Measurement on bi-dimensional slices
- VRA (Volume Rendering Analysis for 3D Volume calculations : Automatic, semi-automatic and manual volume calculation. Automatic Vascular Index Calculation Absolute volumes and percentages, volumetric Voxel color and B&W calculation. Software for automatic calculation of ovary follicles volumes)
- 3D with Color and Power Doppler
- XLight (Advanced illumination rendering technique)
- XGlass : trasparency/gradient algorithm able to highlight the areas where there is a change in the ultrasound impedance
  This technique is aimed to make the internal fetal structures, and the different organs surfaces visible inside the volume
  New Opacity curves are available to determine the best Transparency effect, even in combination of the Bmode Settings used for the acquisition.

6.13 XSTIC

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

6.14 ElaXto

ElaXto allows you to perform elastosonographic analysis of the tissues. Elastosonography is a technique that gives information on the tissue elasticity by color coding an area of interest. Measurements available:

- Stiffness Ratio measurement by trace or ellipse. up to four ROI can be analysed and compared to the reference
- Histograms representation in ROI
- Hardness % by trace or ellipse
- Softness % by trace or ellipse

This technology is available on the following transducers and applications (MSK is for Musculoskeletal):

C 1-8 (Abdominal, Ginecology, Urology, MSK)
C 2-9 (Abdominal, Ginecology, Urology, MSK)
SI2C41 (Abdominal)
SB2C41 (Abdominal)
TLC 3-13 (Urology)
E 3-12 (Ginecology, Urology)
SB3123 (Ginecology, Urology)
mC 3-11 (Small Parts)
L 3-11 (Abdominal, Breast, MSK, Small Parts, Thyroid)
L 4-15 (Breast, MSK, Small Parts, Thyroid)
LX 3-15 (Breast, MSK, Small Parts, Thyroid)
L 8-24 (Breast, MSK, Small Parts, Thyroid)
SL2325 (Breast, MSK, Small Parts, Thyroid)
IH 6-18 (Abdominal, Breast, MSK, Small Parts)
SL3116 (Breast, MSK, Small Parts, Thyroid)
BL433 (Breast, MSK, Thyroid)
IOT342 (Abdominal, MSK)

6.15 QElaXto 2D

The QElaXto 2D application allows to perform a Colored Quantitative stifness analysis of tissues in Real-time.
Baed on the QelaXto analysis the shearwave speed propagation is detected. In QEaXto 2D stiffness values are converted and color coded and displayed inside the 2x2.5 cm Region Of Interest (ROI).
A different set of palettes is available, with dynamic control and transparency.
Maximum range can be changed by the user up to 1000 kPa.
Available with the C 1-8, transducer for Abdominal application and L 4-15, LX 3-15 and L3-11 transducers for Abdominal/Thyroid/Breast & MSK applications.

6.16 QAI (QAttenuation Imaging)

The QAI (QAttenuation Imaging) application allows to perform a Colored Quantitative Attenuation analysis of tissues in Real-time.
Based on the attenuation analysis along the ROI. In QAI attenuation parameter values are converted and color coded and displayed inside the Region Of Interest (ROI).
A different set of palettes is available, with dynamic control and transparency.
Available with the C 1-8 transducer for Abdominal application.

6.17 eDetect

The eDetect is a tool that automatically detect thanks to Artificial Intelligence algorithm the lesion contouring. After automatic lesion

contouring, area and perimeter of the detected contour is displayed waiting for user approval.

In addition, serveral morphologic parameters (following Bi-Rads : shape, orientation and circumscribed & Ti-Rads: shape) are automatically proposed to the customer and upon validation is inserted in the final report.
The tool is available in Breast and Thyroid application.
Breast eDetect Automatic Cross Diameter is automatically tracing axial and longitudinal distance caliper on potential lesion. User can modify and/or approve the porposed measurements to include it inside the report.

6.18 TVM

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

- TVM is a Doppler-based technique that provides color-coded information of Myocardial tissue velocities
- TVM is available in the following modes:
  - 2D /TVM
  - M–Mode/MTVM
  - PW Doppler/TV
- Factory and user programmable presets for TVM (Requires the cardio module) Available on transducers PX 1-5 and P 1-5

6.19 CMM

- CMM (Compass M-Mode) allows clinicians to correct M-Mode line position to optimize tracing acquisition, even when the position of the heart is not perpendicular to the ultrasound beam. Up to three independent lines in real-time

6.20 XStrain

XStrain allows clinicians to quantify endocardial velocities of contraction and relaxation and local deformation of the heart (Strain/Strain rate)

- Based on 2D speckle tracking technology
- Innovative and non-invasive
- Angle-independent technology
- User-friendly customizable interface
- Intuitive A.I. Powered for auto boarder detection of left ventricule (LV), Zero-click technology workflow
- Manual segmentation for right ventricle (RV) and Left Atrium (LA) technology
- Comprehensive measurement package, including Global Strain LV, Free Wall Longitudinal Strain RV, and Strain LA

6.21 Stress-Echo

Stress-Echo allows clinicians to acquire multiple views of the Left Ventricle under stress, using customizable protocols

- Real-time 2D loops digitally synchronized with the ECG trace
- User-programmable protocols
- Multi-format reviewing capabilities for accurate monitoring of cardiovascular function
- Loop comparison by view, by stage or free mode
- Continuous capture, prospective and retrospective modes. Dedicated report with bull's eye and Wall motion score

6.22 AutoEF

AutoEF, based on Artificial Intelligence, detects and track, automatically, the LV endocardial border to calculate LV Volumes (Diastolic

Volume - Systolic Volume) and EF (Ejection Fraction).

6.23 LVO

Left Ventricle Opacification (LVO) Software Uses low mechanical index ultrasound to interact with 2nd generation contrast agents to enhance LV visualization in difficult to scan patients.

6.24 AutoCM

The feature allows automatic measurements in:

- B-Mode (PLAX view in DUAL MODE)
- PW Doppler

The B-Mode algorithm recognizes the ES frame automatically, based on the ECG trace. The features will provide IVS, LVID and LVPW for the Diastolic frame (on the Left) and Systolic frame (on the Right). Caliper editing is also allowed, before the approval, moving the blue cursor on the specific caliper.

The PW Doppler algorithm allows the automatic measurement of the Mitral Valve on the E/A ratio for the diastolic evaluation.
The dedicated algorithm can detect all the velocity peaks and launch the measurements.

6.25 MyLibrary

- Dedicated Libraries for Rheumatology, MSK, Regional anesthesia, Physiotherapy, Advanced vascular, Podiatry and Gynecology
- Live Preview feature allows to scan in real-time while using anatomical references and scanning guidance

7. Transducers

Probes	Applications
BL433	Abdominal, Breast, Musculo-skeletal, Pediatric, Small Organ, Thyroid, Vascular
C 1-8	Abdominal, Gynecology, Musculo-skeletal, Obstetric and Fetal, Pediatric, Urology, Vascular
C 2-9	Abdominal, Gynecology, Musculo-skeletal, Obstetric and Fetal, Pediatric, Urology, Vascular
E 3-12	Gynecology, Obstetric and Fetal, Urology
EC123	Gynecology, Obstetric and Fetal, Urology
IH 6-18	Abdominal, Musculo-skeletal, Neonatal, Pediatric, Small Organ, Vascular
IHX 6-25	Abdominal, Musculo-skeletal, Neonatal, Pediatric, Small Organ, Vascular
IL 4-13	Abdominal, Breast, Musculo-skeletal, Pediatric, Small Organ, Thyroid, Vascular
IOT342	Abdominal, Musculo-skeletal, Pediatric, Small Organ, Vascular
L 3-11	Abdominal, Breast, Musculo-skeletal, Neonatal, Obstetric and Fetal, Pediatric, Small Organ, Thyroid, Vascular
LX 3-15	Abdominal, Breast, Musculo-skeletal, Neonatal, Pediatric, Small Organ, Thyroid, Vascular
L 4-15	Abdominal, Breast, Musculo-skeletal, Neonatal, Pediatric, Small Organ, Thyroid, Vascular
L 8-24	Breast, Musculo-skeletal, Neonatal, Pediatric, Small Organ, Thyroid, Vascular
LP 4-13	Abdominal
mC 3-11	Abdominal, Cardiac, Neonatal, Obstetric and Fetal, Pediatric, Pediatric, Cardiac, Small Organ, Thyroid, Vascular
P 1-5	Abdominal, Adult Cephalic, Cardiac, Pediatric Cardiac, Vascular
P 2-9	Cardiac, Neonatal, Pediatric Cardiac
P2 5-13	Cardiac, Neonatal, Pediatric, Pediatric Cardiac, Small Organ, Vascular
PX 1-5	Abdominal, Adult Cephalic, Cardiac, Pediatric Cardiac, Vascular
S2MCW	Cardiac, Pediatric Cardiac
S5MCW	Vascular
SB2C41	Abdominal, Gynecology, Musculo-skeletal, Obstetric and Fetal, Pediatric, Urology
SB3123	Gynecology, Obstetric and Fetal, Urology
SHFCW	Vascular
SI2C41	Abdominal, Gynecology, Musculo-skeletal, Obstetric and Fetal, Pediatric, Urology
SL2325	Breast, Musculo-skeletal, Neonatal, Pediatric, Small Organ, Thyroid, Vascular
SL3116	Breast, Neonatal, Musculo-skeletal, Pediatric, Small Organ, Thyroid, Vascular
ST2612	Cardiac
TE 3-8	Cardiac
TLC 3-13	Gynecology, Urology

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 Endocavity
- Intraoperative
- Laparoscopic
- Pencil CW

7.2 Contrast Transducers

The following transducers can be used with CnTI in the applications indicated below:

C 1-8:Abdominal, Gynecology
C 2-9: Adbominal, Gynecology
E 3-12: Gynecology, Ob-fetal, Urology
IOT342: Abdominal, Small Parts, Vascular, Muscoloskeletal
TLC 3-13: Urology, Gynecology
L 3-11: Abdominal, Musculoskeletal, Vascular
L 4-15: Breast, Musculoskeletal, Small Parts, Thyroid, Vascular
LX 3-15: Breast, Musculoskeletal, Small Parts, Thyroid, Vascular
BL433: Breast, Musculoskeletal, Small Parts, Thyroid, Vascular
PX 1-5: Cardiac (LVO), Adult Cephalic, Vascular, Abdominal
P 1-5: Cardiac (LVO), Adult Cephalic, Vascular, Abdominal
SB2C41: Abdominal, Gynecology
SI2C41: Abdominal, Gynecology
mC 3-11: Abdominal, Vascular, Small Parts
SB3123: Gynecology, Ob-fetal, Urology

7.3 Transducers Technical Specifications

C 1-8

- Type: Convex
- Technology: Wideband Electronic Single Crystal Array
- Operating Bandwidth: 1-8 MHz
- Max Field of view: 7° - 105°
- Radius of Curvature: 50 mm
- Footprint: 65x19 mm
- Max Depth: 500 mm
- B-M Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, RES-L, RES-M, RES-H
- TEI-MTEI Frequencies: CPI-H, CPI-L, GEN-L, GEN-M, RES-M, RES-H
- CFM–PW Frequencies: 1.9, 2.3, 2.5, 2.8, 2.9, 3.1 MHz
- CW: Not Available
- 2D-CnTi Frequencies: PEN-H, GEN-M, RES-L, RES-M
- Steered Angle: not available
- Tilt: from -49° to 49°
- Reusable Needle Guide
- Disposable Needle Guide: 15°, 25°, 35°
- Weight: 95 g transducer head excluding cable and connector; 520 g complete transducer
- Dimensions: 101,4x66,7x34,7 mm

C 2-9

- Type: Convex
- Technology: High-sensitivity transducer array
- Operating Bandwidth: 2-9 MHz
- Max Field of view: 7° - 105°

- Radius of Curvature: 40 mm
- Footprint: 60x16 mm
- Max Depth: 441 mm
- B-M Frequencies: PEN-H, PEN-M, GEN-L, RES-L, RES-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, RES-L, RES-H
- CFM–PW Frequencies: 2.5, 2.8, 2.9, 3.1, 3.6, 3.8, 4.2, 4.5, 5 MHz
- CW: Not Available
- 2D-CnTi Frequencies: PEN-H, GEN-M, RES-L, RES-M
- Steered Angle: not available
- Tilt: from -49° to 49°
- Needle Guide: not available
- Weight: 140 g transducer head excluding cable and connector; 590 g complete transducer
- Dimensions: 101,2x66,5x34,9 mm

SI2C41

- Type: convex with 0° Needle Guide groove
- Technology: Wideband Electronic Convex Array
- Operating Bandwidth: 1-8MHz
- Max Field of view: 7° - 105°
- Radius of Curvature: 50mm
- Footprint: 68x23mm
- Max Depth: 360mm
- B-M Mode Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L
- TEI-MTEI Frequencies: PEN-H, PEN-M, PEN-L, RES-L, RES-M, RES-H
- CFM–PW Frequencies: 1.9, 2.1, 2.3, 2.4, 2.5, 2.8, 3.3, 3.8 MHz
- CW: Not Available
- 2D-CnTi Frequencies: PEN-L, GEN-M, RES-H
- Steered Angle: not available
- Tilt: from -49° to 49°
- Reusable and Disposable Needle Guide: 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: 9° - 128°
- Radius of curvature: 40mm
- Footprint: 68x23mm
- Max Depth: 337mm
- B-M Mode Frequencies: PEN–M, PEN-L, GEN-M, RES-L
- TEI-MTEI Frequencies: PEN-H, PEN-M, GEN-M, RES-H
- CFM-PW Frequencies: 1.9, 2.1, 2.3, 2.4, 2.5, 2.8, 3.3, 3.8 MHz
- CW: Not Available
- Steered Angle: not available
- Tilt: from -41° to 41°
- Disposable Needle Guide: 25°, 35°
- Weight: 190 g transducer head excluding cable and system connector, 640 g transducer complete
- Dimensions: 67x50x110mm

mC 3-11

- Type: Microconvex
- Technology: Wideband Electronic Microconvex
- Operating Bandwidth: 3–11 MHz
- Max Field of view: 19° - 138°
- Radius of Curvature: 10°
- Footprint: 11 x 25 mm
- Max Depth: 189 mm

- 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°
- Disposable Needle Guide: 20°, 35°
- Dimensions: 31x27x88 mm

L 4-15

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operative Bandwidth: 4-15MHz
- Max field of view: 16-46 mm (4°-36° Tp-View)
- Footprint: 55x7mm
- Max Depth: 166 mm
- B-M Modes Frequencies: PEN-H, PEN-L, GEN-L, RES-L, RES-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-M, RES-L, RES-H
- CFM–PW Frequencies: 4.2, 4.5, 5, 5.6, 6.3, 7.1, 8.3, 10 MHz
- CW: Not Available
- 2D-CnTi Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-H
- Steered Angle: max 21°
- Reusable Needle Guide
- Disposable Needle Guide: 40°, 60° or free angle 42-75°
- Weight: 120 g transducer head excluding cable and connector, 470 g complete transducer
- Dimension: 58x89x 26 mm

LX 3-15

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operative Bandwidth: 3-15 MHz
- Max field of view: 16-46 mm (4°-36° Tp-View)
- Footprint: 50.5x7.5 mm
- Max Depth: 166 mm
- B-M Modes Frequencies: PEN-H, PEN-L, GEN-L, RES-L, RES-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
- CFM–PW Frequencies: 4.2, 4.5, 5, 5.6, 6.3, 7.1, 8.3, 10 MHz
- CW: Not Available
- 2D-CnTi Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
- Steered Angle: max 21°
- Reusable Needle Guide
- Disposable Needle Guide: 40°, 60° or free angle 42-75°
- Weight: 100 g transducer head excluding cable and connector, 470 g complete transducer
- Dimension: 140 x 58 x 27 mm

L 3-11

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operating Bandwidth: 3-11 MHz
- Max Field of view: 9-39 mm (5°-54° Tp-View)
- Footprint: 49x12 mm

- Max Depth: 200 mm
- B-M Modes Frequencies: PEN-H, PEN-M, GEN-L, RES-L, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, GEN-L, RES-L, RES-H
  CFM–PW Frequencies: 2.5, 3.3, 5, 6.3 MHz
- CW: Not Available
- 2D-CnTi Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
- Steered Angle: Maximum 28° (in Color mode)
- Reusable Needle Guide
- Disposable Needle Guide: 25°, 30°, 50° or free angle 42-79°
- Weight: 120 g transducer head excluding cable and system connector; 470 g complete transducer
- Dimension: 58x89x26 mm

L 8-24

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operating Bandwidth: 8-24 MHz
- Max Field of view: 18-38 mm (4°-36° Tp-View)
- Footprint: 44x7 mm
- Max Depth: 102 mm
- B-M Modes Frequencies: PEN-H, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, GEN-M, RES-H
- CFM–PW Frequencies: 8.3, 10, 12.5, 16.7 MHz
- CW: Not Available
- Steered Angle: Maximum 21° (in Color mode)
- Needle Guide: Not available
- Weight: 120 g transducer head excluding cable and system connector; 470 g complete transducer
- Dimension: 57.2x27.3x94.6

SL3116

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Operating Bandwidth: 12-25 MHz
- Max Field of view: 7-13 mm (6°-42° Tp-View)
- Footprint: 16x4 mm
- Max Depth: 46 mm
- B-M Modes Frequencies: PEN-H, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, GEN-L, RES-H
- CFM–PW Frequencies: 10, 12.5, 16.7 MHz
- CW: Not Available
- Steered Angle: Maximum 21° (in Color mode)
- Needle guide: Not available
- Weight: 35 g transducer head excluding cable and system connector; 435 g complete transducer
- Dimension: 25,63 x 35 x 145,93 mm

SL2325

- Type: Linear
- Technology: Wideband Electronic Linear Array
- Bandwidth: 6 – 19 MHz
- Field of view: 18 – 38 mm (4°-36° TP-View)
- Footprint: 44x9 mm
- Max Depth: 102 mm
- B-Mode Frequencies: PEN-H, PEN–L, GEN-M, RES-M, RES-H
- TEI Frequencies: PEN–H, GEN-M, RES-M, RES-H
- CFM Frequencies: 6.3 – 8.3 – 10.0 – 12.5, 16.7 MHz
- PW Frequencies: 6.3 – 8.3 – 10.0 – 12.5 – 16.7 MHz

- Steering angles: Maximum 21° (in Color mode)
- Reusable Needle Guide: 50°, 60°, 70°
- Disposable Needle Guide: 50°, 60°, 70° or free angle 42-80°
- Weight: 100 g
- Dimensions: 105 x 56.4 x 25.8 mm

IH 6-18

- Type: linear – hockey stick
- Technology: Wideband Electronic Linear Array
- Operating Bandwidth: 6-18 MHz
- Footprint: 32x5 mm
- Max Depth: 102 mm
- Field of view: 19-28 mm (5°- 36° Tp-View)
- B-M Modes Frequencies: PEN-H, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, GEN-M, RES-H
- CFM Frequencies: 7.1, 8.3, 10, 12.5, 16.7 MHz,
- PW Frequencies: 7.1, 8.3, 10, 12.5 MHz
- CW: Not Available
- Steered Angle: Maximum 21° (in Color mode)
- Needle Guide: Not available
- Weight: 90 g transducer head excluding cable and system connector; 410 g complete transducer
- Dimension: 5 x 32 x118 mm

IHX 6-25

- Type: linear – hockey stick
- Technology: Wideband Electronic Linear Array
- Operating Frequency range: 6-25 MHz
- Footprint: 30 mm
- Max Depth: 102 mm
- Field of view: 19-26 mm (4°- 36° Tp-View)
- B-M Modes Frequencies: PEN-H, PEN-M, GEN-M, RES-L, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, GEN-M, RES-L, RES-H
- CFM Frequencies: 5.6, 6.3, 7.1, 8.3, 10, 12.5 MHz,
- PW Frequencies: 5.6, 6.3, 7.1, 8.3, 10, 12.5 MHz
- CW: Not Available
- Steered Angle: Maximum 21° (in Color mode)
- Needle Guide: Not available
- Weight: 20 g, probe head excluding cable and system connector; 480 g, complete probe, cable and system connector

BL433

- Technology: Volumetric Wideband Electronic Linear
- Footprint: 55x28 mm
- Operating Bandwidth: 13-4 MHz
- Depth: 18 – 148 mm
- Scan Angle: 4°-36° (TP View)
- Field of view: 16-44 mm
- B-M Modes Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
- TEI Frequencies: PEN-H, PEN-M, PEN-L, GEN-L, RES-L, RES-M, RES-H)
- CFM–PW Frequencies: 4.2, 4.5, 5.0, 5.6, 6.3 MHz
- CW: Not Available
- Steered Angle: from -21° to +21°
- Needle Guide : Not Available
- Weight: 180g probe head excluding cable and system connector; 990g complete probe

PX 1-5

- Type: Phased Array

- Technology: Wideband Electronic Single Crystal Array
- Operating Bandwidth: 1-5 MHz
- Field of view: 16°- 91°
- Footprint: 12x25 mm
- Max Depth: 356 mm
- B-M Modes Frequencies: PEN-H, GEN-L, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, GEN-L, GEN-M, RES-H
- CFM–PW Frequencies: 1.7, 2.2, 2.5, 3.1 MHz
- CW Frequencies: 1.9, 2.1, 2.5 MHz
- 2D-CnTi Frequencies: GEN-L, GEN-M, RES-L - In Cardio LVO RES-M
- Steered Angle: Not Available
- Tilt: from -34° to 34°
- Needle Guide: Not Available
- Weight: 85g transducer head excluding cable and system connector; 825g complete transducer

P 1-5

- Type: Phased Array
- Technology: Wideband Electronic Single Crystal Array
- Operating Bandwidth: 1-5 MHz
- Field of view: 16°- 93°
- Footprint: 12x25 mm
- Max Depth: 356 mm
- B-M Modes Frequencies: PEN-H, PEN-L, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, GEN-M, RES-L
- CFM–PW Frequencies: 1.7, 2, 2.5, 3.1 MHz
- CW Frequencies: 1.9, 2.1, 2.5 MHz
- 2D-CnTi Frequencies: PEN-H, PEN-L, PEN-M, GEN-L, GEN-M, RES-M, RES-L
- Steered Angle: Not Available
- Tilt: from -35° to 35°
- Needle Guide: Not Available
- Weight: 90g transducer head excluding cable and system connector; 390g complete transducer
- Dimension: 80,3 x 34,2 x 27,7mm

P 2-9

- Type: Phased Array
- Technology: Wideband Electronic Phased Array
- Operating Bandwidth: 2-9 MHz
- Field of view: 16°- 87°
- Footprint: 17x10.1 mm
- Max Depth: 360 mm
- B-M Modes Frequencies: PEN-M, GEN-L, GEN-M, RES-M, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-M, GEN-M, RES-L, RES-M, RES-H
- PW Frequencies: 2.5, 3.3 MHz
- CW Frequencies: 2.5, 3.6 MHz
- CFM-PWR-XFLOW Frequencies: 2.9, 3.3, MHz
- Steered Angle: not available
- Tilt: from -35° to 35°
- Needle Guide: Not Available
- Weight: 90g transducer head excluding cable and system connector; 370g complete transducer
- Dimension: 79.5x29.2x24.9 mm

P2 5-13

- Type: Phased Array
- Technology: Wideband Electronic Phased Array
  - Operating Bandwidth: 5-13 MHz
  - Field of view: 14°- 83°
  - Footprint: 17.2x14.1 mm
  - Max Depth: 128 mm
  - B-M Modes Frequencies: PEN-H, PEN-L, RES-L, RES-H
  - TEI-MTEI Frequencies: PEN-L, GEN-M, RES-H
  - CFM-PW Frequencies: 4.2 – 7.1 MHz

- CW Frequencies: 5.0 MHz
- Steered Angle: not available
- Tilt: from -7° to 7°
- Needle Guide: Not Available
- Weight: 40g transducer head excluding cable and system connector
- Dimension: 97x30x24 mm

ST2612

- Type: Phased Array Transesophageal Adult
- Technology: Wideband Electronic Phased Array
- Operating Bandwidth: 3 - 7 MHz
- Field of view: 18° - 90°
- Max Depth: 177 mm
- B-Mode Frequencies: PEN–H, PEN-L, GEN-M, RES-H
- TEI Frequencies: PEN–H, PEN-L, GEN-M, RES-H
- CFM Frequencies: 3.3 – 3.6 – 3.8 MHz
- PW Frequencies: 3.3 – 3.6 – 3.8 MHz
- CW Frequencies: 5.0 MHz
- Steered Angle: not available
- Tilt: from -36° to 36°
- Weight: 1000g
- Dimensions: 45 x 14 x 1100 (Endoscope) mm

TE 3-8

- Type: Phased Array Transesophageal Adult
- Technology: Wideband Electronic Phased Array
- Operating Bandwidth: 3 – 8 MHz
- Field of view: 15° - 88°
- Max Depth: 182 mm
- B-Mode Frequencies: PEN–H, PEN-L, GEN-M, RES-M, RES-H
- TEI Frequencies: PEN–H, GEN-M, RES-L, RES-H
- CFM Frequencies: 2.8, 3.3, 3.8, 4.5 MHz
- PW Frequencies: 2.8, 3.3, 3.8, 4.5 MHz
- CW Frequencies: 3.6 MHz
- Steered Angle: not available
- Tilt: from -36° to 36°
- Weight: 1000g
- Dimensions: 30.6 x 14.3 x 1100 (Endoscope) mm

SB3123

- Type: Volumetric - Microconvex
- Technology: Wideband Electronic endfire microConvex
- Operating Bandwidth: 3 – 9 MHz
- Field of view: 24° - 191°
- Footprint: 25x25 mm
- Max Depth: 155 mm
- B-Mode Frequencies: PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-H
- TEI Frequencies: PEN-M, RES-L, RES-M, RES-H
- CFM Frequencies: 4.5, 5, 5.6, 6.3, 7.1MHz
- PW Frequencies: 4.5, 5, 5.6, 6.3, 7.1 MHz
- 2D-CnTi Frequencies: PEN-H, PEN-M, GEN-M, RES-M, RES-H
- Steered Angle: not available
- Tilt: from -84° to 84°
- Needle Guide: Not Available
- Weight: 300 g transducer head excluding cable and system connector; 660 g complete transducer
- Dimension: 306 x 36 x 50 mm

E 3-12

- Type: End Fire – Micro convex
- Technology: high-sensitivity transducer array
- Operating Bandwidth: 3-12 MHz
- Field of view: 22°-271°
- Radius of Curvature: 10 mm

- Footprint: 23x11 mm
- Max Depth:160 mm
- B-M Frequencies: PEN-H, GEN-L, GEN-M, RES-H
- TEI-MTEI Frequencies: PEN-H, GEN-L, GEN-M, RES-L, RES-H
- CFM–PW Frequencies: 4.5, 5, 5.6, 6.3, 7.1 MHz
- CW: Not Available
- 2D-CnTI: RES-H, RES-M, GEN-M, PEN-M, PEN-H
- Steered Angle: not available
- Tilt: from -110° to 110°
- Reusable and Disposable Needle Guide: 0°
- Weight: 195g transducer head excluding cable and system connector; 565g complete transducer
- Dimension: 305 x 48 x 32mm

EC123

- Type: End Fire – Micro convex
- Technology: Wideband Electronic end fire microConvex
- Operating Bandwidth: 3-10 MHz
- Field of view: 47° - 194°
- Extended Field of View: 22° - 241°
- Footprint: 22x8 mm
- Max Depth:160 mm
- B-M Frequencies: PEN-M, GEN-L, RES-L, RES-H
- TEI-MTEI Frequencies: PEN-H, PEN-L, GEN-M, RES-L, RES-M, RES-H
- CFM–PW Frequencies: 4.5, 5, 5.6, 6.3, 7.1 MHz
- CW: Not Available
- 2D-CnTI: RES-H, RES-M, GEN-M, PEN-M, PEN-H
- Steered Angle: not available
- Tilt: from -110° to 110°
- Reusable and Disposable Needle Guide: 3.8°
- Weight: 150g transducer head excluding cable and system connector; 730g complete transducer
- Dimension: 294 x 38,8 x 29,9mm

TLC 3-13

- Type: Linear/Convex Transrectal
- Operating Bandwidth: Convex 3-9 MHz; Linear 4-13 MHz
- Technology: Biplane Wideband Electronic Linear-Convex Array
- Field of view: Convex 21°-242°; Linear 15-58mm (4°-36° Tp-View)
- Tip size: 20.2 mm
- Max Depth: Convex 162 mm; Linear 120 mm
- B-M Frequencies: Convex PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
  Linear PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
- TEI-MTEI Frequencies: Convex PEN-H, PEN-M, PEN-L, GEN-L, GEN-M, RES-L, RES-M, RES-H
  Linear PEN-M, PEN-L, GEN-L, GEN-M, RES-M
- CFM–PW Frequencies: Convex 3.8, 4.2, 4.6, 5, 5.6, 6.3, 7.1, 8.3 MHz
- Linear 4.2, 4.5, 5, 5.6, 6.3, 7.1, 8.3, 10 MHz
- CW: Not Available
- 2D-CnTi: Convex PEN-H, PEN-L, GEN-M, RES-H
  Linear PEN-H, GEN-L, GEN-M, RES-H
- Steered Angle (Linear): max 21°
- Tilt (CVX): from -110° to 110°
- Reusable and disposable needle guide: 90°
- Weight: 540g transducer head excluding cable and system connector; 950g complete transducer
- Dimension: 353,4 x 12,4 x 47,8mm

LP 4-13

- Application: Laparoscopic

- Technology: Wideband Electronic Linear Array
- Depth: 22 – 102 mm
- Footprint: 37x5 mm
- Operating Bandwidth: 4-13 MHz
- B-M Modes Frequencies: Pen H, Pen L,
- Gen M, Res H
- Field of View 35 mm (6°-40° TP-View)
- TEI Frequencies: Pen H, Pen L, Gen M, Res H
- CFM–PW Frequencies: 5.0-7.1 MHz
- Steered Angle: -18° to 18°
- Tilt not available
- Articulation ± up/down 90°
- Articulation ± right/left 90°
- Needle Guide: Not Available

IL 4-13

- Application: Intraoperative
- Technology: Wideband Electronic Linear Array
- Depth: 10 – 102 mm
- Footprint: 42x8 mm
- Field of View: 17-34 mm (6°-40° TP-View)
- Operating Bandwidth: 4-13 MHz
- B-M Modes Frequencies: Pen H, Pen L, Gen M, Res H
- TEI Frequencies: Pen H, Pen L, Gen M, Res H
- CFM–PW Frequencies: 5.0, 5.6, 6.3, 7.1 MHz
- Steered angle: -18° to 18°
- Tilt not available
- Multi angle reusable autoclave sterilised needle guide

IOT342

- Application: Intraoperative
- Bandwidth: 3 – 11 MHz
- Depth: 51 – 176 mm
- Footprint: 36x8 mm
- Field of view: 35 mm (9° - 66° TPView)
- B-Mode Frequencies: PEN–H, PEN-L, GEN-M, RES-L, RES-H
- TEI Frequencies: PEN-H, PEN–L, GEN-M, RESL,RES-H
- 2D-CnTi Frequencies: PEN-H, GEN-M
- CFM Frequencies: 2.5 – 5.6 MHz
- PW Frequencies: 2.5 – 5.6 MHz
- Steering angles: -28° to 28°
- Tilt not available
- Disposable Needle Guide: free angle 42-79°
- Weight: 30 g
- Dimensions: 46.3 x 44.8 x 38.6 mm

7.4 Non – Imaging Pencil Transducers

2CWS - Doppler

- Number of elements: 2
- Nominal Frequency: 1.9, 2.1 MHz
- Footprint: 17 mm diameter
- Weight: 243 g, complete probe, cable and system connector
- Dimensions: 135x65x17 mm

5CWS - Doppler

- Number of elements: 2
- Nominal Frequency: 5 MHz
- Footprint: 11 mm diameter
- Weight: 234 g, complete probe, cable and connector
- Dimensions: 119x11x11 mm

S2MCW - Doppler

- Number of elements: 2
- CW Frequencies: 1.9, 2.1 MHz
- Footprint: 18 mm diameter
- Weight: 250 g complete transducer

- Dimensions: 126 x 78 x 18 mm

S5MCW - Doppler

- Number of elements: 2
- CW Frequencies: 5 MHz
- Footprint: 10 mm diameter
- Weight: 250 g complete transducer
- Dimensions: 90 x 10 mm

SHFCW - Doppler

- Number of elements: 2
- CW Frequencies: 6.3, 7.8 MHz
- Footprint: 8 mm diameter
- Weight: 240 g complete transducer
- Dimensions: 90 x 8 mm

8. Physical specifications

8.1 Dimensions

- Closed (approximately): 605 (W) x 1135 (H) x 730 (D) mm
- In working position: 605 (W) x 765-1025 (H) x 730 (D) mm (height of trackball)
- In working position: 605 (W) x 940-1202 (H) x 730 (D) mm (at top of Control Panel)
- In working position: 605 (W) x 1315-1577 (H) x 730 (D) mm (at top of the Monitor)

8.2 Weight

- 89,1 kg (basic configuration without peripheral units)

8.3 Noise value

Around 28dBA* (Operator standing)
*System noise value depend on system configuration and condition of use (including ambient temperature).

Operator standing: measurement point centered on the front surface of the ultrasound at a horizontal distance of 0.40m and a height of 1.60m, with respect to the support plane of the ultrasound system.

8.4 Video I/O

- Full HD
- DVI (main monitor)
- Display Port (auxiliary monitor)

8.5 Power supply

- Voltage operative range: 100-120V / 200-240V
- Voltage limit range: 90-132V /180-264V
- Working frequency range: 50-60 Hz
- Standby suspension/hybernate functions
- Power consumption < 260 VA
- Available power on peripherals:
  - up to 320VA 100-120V operative range
  - up to 450VA 200-240V operative range
- BTU/h < 950

8.6 Power Cables

- Power Cable with CEE Plug
  - Connector: EN60320 / C13 10A-250V
  - Plug: Type VII G CEE(7) VII
  - Cord Type: H05VVF3G 3x1,00mm2
  - Lenght: 4.5m
- Power Cable with CEI Plug
  - Connector: EN60320 / C13 10A-250V
  - Plug: I/3G CEI 23-50
  - Cord Type: H05VVF3G 3x1,00mm2
  - Lenght: 4.5m
- Power Cable with NEMA Plug

  - Connector: EN60320 / C13M 10A-250V
  - Plug: HG NEMA 5-15
  - Cord Type: SJT 3 x 14AWG
  - Lenght: 4.5m

- Power Cable with Brazil Plug
  - Connector: EN60320 / C13 10A-250V
  - Plug: BR/3 according to NBR14136
  - Cord Type: H05VVF3G 3x1,00mm2
  - Lenght: 4.5m

- Power Cable with UK Plug
  - Connector: EN60320 / C13 10A-250V
  - Plug: BS13/13 BS1363/A
  - Cord Type: H05VVF3G 3x1,00mm2
  - Lenght: 4.5m

8.7 Optional battery

Availability of 14V battery, which guarantees around 80 mins of system autonomy and more than 120h in stand by mode.
Time to reach complete charge: approximately 2h.

8.8 Operating requirements

- Temperature: 15-35°C
- Humidity: 20-80 % (not condensing)
- Pressure: 700-1060 hPa

8.9 Storage Requirements

- Temperature: -20 - +60°C
- Humidity: 10-80 % (not condensing)
- Pressure: 700-1060 hPa

8.10 Standard Compliance

The MyLab™X8 system complies with the requirements of the 2017/745 EU Medical Device Regulation and carries the CE mark.

- EN 60601-1
- EN 60601-1-2
- IEC 60601-2-37

8.11 Patient data privacy Management

Esaote develops its products, including MyLab, with the aim of providing its customers with enhanced security capabilities and is committed to cooperate with customers in their efforts to comply with security and privacy laws and regulations (such as HIPAA in the U.S.A., GDPR in Europe and PRC Cybersecurity Law in China).

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