

# ESAOTE

Rev. G

June 2011

**MyLabFive**

GETTING STARTED

**OPERATOR MANUAL**

41B03EN07

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## ***Introduction***

This manual refers to the **MyLabFive** ultrasound systems, named in the following chapters as **MyLab**. **MyLab** is available both in portable and in mobile configuration. The term “**MyLab**”, used in this manual, refers to both configurations. When the information refers to only one configuration, it will be specifically indicated.

This manual explains how to install and use the **MyLab** ultrasound system. All system keys and their functions are described. Whether these keys are enabled or disabled depends on the installed software release.

This manual is organized in the following chapters:

- Chapter 1: Additional Information on Safety

This chapter provides information about specific safety features of the **MyLab** system.

- Chapter 2: Clinical Applications

This chapter specifies in which clinical applications the **MyLab** can be used.

- Chapter 3: System Components and Installation

This chapter lists the available **MyLab** configurations. Moreover, it contains the installation instructions.

- Chapter 4: Control Panel

This chapter describes the **MyLab** control panel.

- Chapter 5: Screen Lay-Out

In this chapter one can learn how information is organized on the screen.

- Chapter 6: Exam Performance

This chapter explains how to perform an exam with the **MyLab** system.

- Chapter 7: Measurements and Calculations

This chapter explains how to perform measurements on ultrasound images.

- Chapter 8: Exams Archive

This chapter describes how to use **MyLab** archive.

- Chapter 9: System Menu

This chapter explains how to configure the **MyLab**.

- Chapter 10: System Maintenance

This chapter lists all necessary maintenance procedures.

- Chapter 11: Technical Specifications

This chapter lists all **MyLab** technical specifications.

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**WARNING**

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In this manual a **WARNING** pertains to possible injury to a patient and/or the operator.

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**CAUTION**

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A **CAUTION** describes the precautions, which are necessary to protect the equipment.

**Be sure that you understand and observe each of the cautions and warnings.**

In this manual control panel keys and software keys are indicated using the following graphical conventions:

Control panel keys      They are indicated by **BLUE CAPITAL LETTERS** or by the corresponding graphic symbol.



Software keys              They are indicated by **BLACK CAPITAL LETTERS**

The confirmation key is always indicated throughout the manual as **ENTER**, while the menu context key as **UNDO**.



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## 1 - Additional Information on Safety

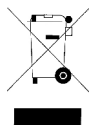


This chapter provides additional information on safety specifically for **MyLab** products. Please read the "Safety and Standards" manual carefully for a complete overview of all safety aspects of **MyLab** products.

### Environmental Safety

*Special waste*

These systems can contain a battery. The battery pack contains lithium-ion batteries. The fluorescent lamp included in the LCD screen contains mercury. The batteries and the LCD screen must be treated as special waste according to the applicable local regulations.



Dispose of the equipment as special waste according to the applicable local regulations. For further information please refer to the local authority for waste disposal.

### Transport Safety

The system can be bought together with a foldaway trolley, a hospital cart or a height adjustable cart. The front wheels of the hospital cart and all four wheels of the height adjustable cart are equipped with brakes, which can be activated individually.

**WARNING**

Do not park the system on a slope.

Do not use the brakes to park the machine on a slope.

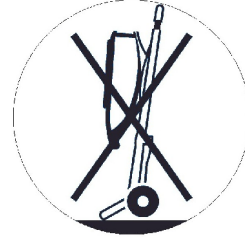
If your system is equipped with peripherals, make sure that they are safely attached via Velcro strips; for transportation in a vehicle, it is strongly recommended to remove the peripheral(s) and follow the device manufacturer guidelines.



**MyLab** in its portable configuration has a fold-away trolley. The trolley must be closed in order to transport the system.

**CAUTION**

Do not leave the trolley closed in the vertical position. Always leave the trolley in the open position to ensure maximum stability.



### **Electromagnetic Compatibility**

This system was designed for use in the electromagnetic environments declared in the tables below, in compliance with standard IEC 60601-1-2:2001. The operator must make sure that s/he uses it in keeping with this standard.

#### **Electromagnetic Emissions**

Emission Test	Conformity	Electromagnetic Environment
RF emissions CISPR 11	Group 1	MyLab is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
RF emissions CISPR 11	Class B	
Harmonic emissions on the electric power supply mains IEC 61000-3-2	Class A	
Voltage fluctuations and flicker emissions IEC 61000-3-3	Conforms	

#### **Electromagnetic Immunity**

The electromagnetic tests are aimed at simulating the typical transients of an electromagnetic environment. **MyLab** was tested for immunity to transients and at their typical levels in a domestic, hospital or commercial environment.

Immunity Test	Conformity Levels	Electromagnetic Environment and Measures to Be Taken
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV on contact ±8 kV in air	The floor should be in antistatic material (wood, concrete or ceramic tile,...). If covered with synthetic material, the relative humidity should be at least at 30%.

Immunity Test	Conformity Levels	Electromagnetic Environment and Measures to Be Taken
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines  ±1 kV for input/output lines	<p>Mains power quality and mains frequency magnetic fields should be that of a typical commercial or hospital environment.</p> <p>If the user of MyLab requires continued operation during power mains interruption, it is recommended that the MyLab is powered through an uninterruptible power supply or through a battery.</p>
Pulse IEC 61000-4-5	±1 kV differential mode  ±2 kV common mode	
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % of rated voltage ( $U_T$ ) (voltage gap >95 %) for 0,5 cycle  40 % $U_T$ (voltage dip 60 %) for 5 cycles  70 % $U_T$ (voltage dip 30 %) for 25 cycles  <5 % $U_T$ (voltage dip >95 %) for 5 sec	
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	
Conducted RF IEC 61000-4-6	3 Vrms  150 kHz to 80 MHz	
Radiated RF IEC 61000-4-3	3 V/m  80 MHz to 2.5 GHz	



**Recommended Distances between Radiofrequency (RF) Communication Systems and MyLab**



As stated in the Safety and Standards manual, it is recommended not to use radiofrequency (RF) transmission systems near the ultrasound system. RF systems can cause interference, which alters the echo graphic image and Doppler traces.

The operator can prevent interference caused by electromagnetic fields by maintaining a minimum distance between the echo graphic system and the RF communication systems being used (cell telephones, mobile telephones...). The

table shows the minimum distance in meters, according to the maximum power at the RF system output.

Maximum Power at Transmitter Output [W]	Distance According to Transmission Frequency [m]		
	From 150 kHz to 80 MHz $d = 1.2\sqrt{P}$	From 80 MHz to 800 MHz $d = 1.2\sqrt{P}$	From 800 MHz to 2,5 GHz $d = 2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

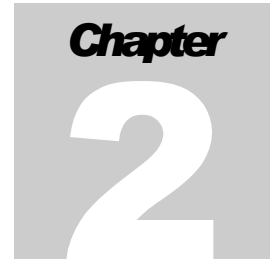
NOTE 1 As a precaution, always apply the greater distance supplied by the table.

NOTE 2 Electromagnetic propagation is subjected to absorption and reflection in the presence of structures, objects and people. The values in the table are general guidelines.

The operator must remember that the intensity of the electromagnetic fields generated by fixed transmitters (radio-base stations for cellular or cordless telephony, TV and radio transmissions, amateur radio transmissions...) cannot be predicted on a theoretical basis. Consequently, a direct measure may be necessary in the use environment of a **MyLab** unit. If the intensity of the electromagnetic fields exceeds that specified in the immunity levels shown in the previous tables, and the echographic system performs incorrectly, additional measures may be necessary, i.e. positioning the system in a different way.

## ***Probes Superficial Temperature***

**MyLab** has been designed to keep the probes superficial temperature within the limits defined by the IEC 60601-2-37 standard. We recommend to freeze the system at the end of the exam by pressing the **FREEZE** key to avoid any probe overheating. The system will automatically be frozen if left inactive for a few minutes.




## 2 - Clinical Applications

**MyLab** is designed for operators who are qualified in using ultrasound systems.

### **Intended use**

In their complete configuration, **MyLab** systems offer several intended uses.

 **SS**  
 Carefully read  
 Chapter 2 of the  
 "Safety and  
 Standards" manual.

#### **Note**

The operator must always follow the principle known as ALARA (As Low As Reasonably Achievable) and, in particular with this application, must use minimum acoustic power for the minimum time compatible with obtaining diagnostic information.

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**WARNING**

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**Do not use MyLab for ophthalmic or transorbital applications.**

**The ultrasound beam is not to be directed at the eyes.**

#### **MyLabFive Models**

**MyLab** can be configured with one or more of the following applications:

Application	Notes
Cardiac (adults and pediatric)	Includes transesophageal exams if a TEE022 (for cardiology in adults) and/or TEE122 or TEE132 (pediatric cardiology) is available
Vascular	Includes PERIPHERAL VASCULARS (PV) and ADULT CEPHALIC (AC)
Urology	-
Obstetrics	Includes FETAL (OB) and GYNECOLOGY (GYN)
General Imaging	Includes ABDOMEN (ABD), PEDIATRIC (PED), BREAST, THYROID, other SMALL ORGANS (testicles,...) and MUSCULO-SKELETAL (MS); includes endovaginal and transrectal exams if an endocavity probe is available

## Clinical Applications

Please consult the corresponding chapter for specifications and licenses.

The tables below list **MyLab** probes and their clinical intended use.

	CAR	PED	PV	SO	THY	MS	BRE	NC	AC	UR	ABD	OB-GYN
<b>PA Probes</b>												
PA230	✓								✓		✓	
PA121	✓										✓	
PA122	✓	✓	✓					✓				
PA023	✓	✓	✓					✓				
<b>LA Probes</b>												
LA332		✓	✓	✓	✓	✓	✓					
LA435		✓	✓	✓	✓	✓	✓					
LA522		✓	✓	✓	✓							
LA523(P)		✓	✓	✓	✓	✓	✓					
LA424		✓	✓	✓	✓	✓	✓					
<b>CA Probes</b>												
CA1421		✓	✓							✓	✓	✓
CA421		✓	✓							✓	✓	✓
CA430			✓							✓	✓	✓
CA431		✓	✓			✓				✓	✓	✓
CA631		✓	✓			✓				✓	✓	✓
CA621		✓	✓							✓	✓	✓
CAB411*		✓	✓			✓				✓	✓	✓
CA123	✓	✓	✓	✓	✓	✓	✓	✓				
C5-2 R13		✓	✓					✓			✓	✓
<b>Special Probes</b>												
TEE022	✓											
TEE122	✓											
TEE132	✓											
EC1123										✓		✓
EC123										✓		✓
E8-5 R10P										✓		✓
TRT33										✓		
IOE323		✓	✓	✓	✓	✓	✓				✓	
LP323											✓	
<b>Doppler Probes</b>												
2 MHz	✓											
5 MHz			✓									
HF CW			✓									

**CAR:** Cardiac (adults and pediatric); **PED:** Pediatric **PV:** Peripheral vascular; **SO:** Small Parts and small organs; **THY:** Thyroid **MS:** Musculo-skeletal (includes peripheral nerve blocks); **BRE:** Breast; **NC:** Neonatal cephalic; **AC:** Adult cephalic **ABD:** Abdominal; **UR:** Urology; **OB-GYN:** Obstetric and Gynaecology

\* Only for Italian market

**WARNING**

Do not use MyLab for ophthalmic or transorbital applications. The ultrasound beam is not to be directed at the eyes.

**WARNING**

Do not use intraoperative and laparoscopic probes in direct contact with the heart, the central circulatory system and the central nervous system.

**Cardiac Applications**

The probe applies ultrasound energy through the thoracic cavity to obtain an image of the heart sufficient for evaluating any cardiac abnormalities. In Doppler modes, the probe applies energy through the thoracic cavity to determine the velocity and direction of blood in the heart and vessels.

The heart can also be studied through the esophagus and/or transgastrically with a transesophageal probe (TEE022 in adult cardiac, TEE122 and TEE132 in pediatric cardiac).

**Pediatric and Neonatal Head Applications**

The probe applies ultrasound energy through the skin in order to obtain images and evaluate flows in pediatric and neonatal exams. In the latter case, the probe applies ultrasound energy through the fontanel in order to visualize cerebral structures (Imaging) or flows (Doppler) to detect structural or functional abnormalities.



Carefully read  
Chapter 2 of the  
"Safety and  
Standards" manual.

**Note**

The operator must always follow the principle known as ALARA (As Low As Reasonably Achievable) and, in particular with this application, must use minimum acoustic power for the minimum time compatible with obtaining diagnostic information.

**WARNING**

This application does not include transorbital or any other ophthalmic application.

The ultrasound beam is not to be directed at the eyes.

**Vascular Applications**

The probe applies ultrasound energy through the neck or the limbs of a patient in order to obtain an image of the carotid artery or of other peripheral vessels. These images show the possible presence of abnormalities or obstructions of the vessels. In Doppler modes, the probe applies ultrasound energy through the neck or the hands/feet of a patient in order to evaluate blood velocity, flow or lack of flow, and the perviousness of the peripheral vessels.



Carefully read  
Chapter 2 of the  
"Safety and  
Standards" manual.

**Note**

The operator must always follow the principle known as ALARA (As Low As Reasonably Achievable) and, in particular with this application, must use minimum acoustic power for the minimum time compatible with obtaining diagnostic information.

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**WARNING**

---

This does not include transcranial, transorbital or any other ophthalmic application.

The ultrasound beam is not to be directed at the eyes.

***Small Organs and Small Parts Application***

The probe applies ultrasound energy through the skin to obtain an image or a Doppler flow visualization of small organs such as thyroid (neck), testicles (scrotal sac) and breast (breast).

***Musculo-Skeletal***

The probe applies ultrasound energy through the skin to obtain an image of tendons, ligaments and muscles and to determine blood flow patterns and velocities.

The probe can be used to provide ultrasound guidance in biopsy to assist the placements of the needles in vascular and anatomical structures as well as peripheral nerve blocks.

***Adult Cephalic***

The probe applies ultrasound energy through the skull in order to visualize cerebral vessels and flows, to detect functional abnormalities.

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**WARNING**

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This application does not include transorbital or any other ophthalmic application.

The ultrasound beam is not to be directed at the eyes.

***Abdominal and related Applications***

The probe applies ultrasound energy through the patient abdomen to obtain an image of the abdominal organs to detect abnormalities (Imaging) and assess the blood velocity, flow and patency of abdominal vessels through the Doppler modalities.

***Gynecologic Application***

Ultrasound energy is applied through the skin to image the female genito-urinary organs and evaluate (Doppler) the blood velocity, flow and patency of vessels. An endocavity probe can also be used to image the same organs in endovaginal exams.

***Urologic Application***

Ultrasound energy is applied through the skin to image the male genito-urinary organs (prostate, bladder ...) and to detect structural and functional abnormalities. An endocavity probe can also be used to image the same organs in transrectal exams.

***OB Application***

The probe applies ultrasound energy through a pregnant woman's abdomen to obtain an image of the fetus to detect structural abnormalities or to visualize and measure anatomic and physiologic parameters of the fetus for the purpose of assessing fetal growth. In Doppler modes, the probe applies energy through the



patient abdomen to detect placental or fetal flow abnormalities. An endocavity probe can also be used for the same purposes (**endovaginal** studies).



*Carefully read  
Chapter 2 of the  
"Safety and  
Standards" manual.*

**Note**

The user should always follow the ALARA (As Low As Reasonably Achievable) principle, but especially in OB/fetal applications. Use the lowest amount of acoustic output power for the shortest duration of time to obtain the necessary clinical diagnostic information.

***Intraoperative and Laparoscopic Applications***

The probe, in direct contact with the structures under exam during surgical operations, allows to identify surgical lesions, blood vessels and eventual anatomical abnormalities and technical imperfections.

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**WARNING**

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**Do not use the intraoperative probe in direct contact with the heart, the central circulatory system and the central nervous system.**



## 3 - System Components and Installation

The **MyLab** will be installed by ESAOTE personnel. This person will be responsible for opening the packaging and ensuring that the system is correctly programmed and operational. This chapter provides an overview of the system's components and the major operations that may be necessary.

### Configurations

#### MyLab

- o Portable (with fold-away trolley)
- o Mobile (hospital type trolley)

**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 both portable and mobile configurations.

#### Portable Configuration

Two portable configurations are possible: The console without a trolley or with a fold-away trolley.

The console contains: the electronics, the control panel with speakers, the probe connectors, the input/output connectors for the ECG and the peripheral units, and the mains switch (rear panel).

The ON/OFF button and the batteries status led are located on the upper right part of the control panel.

The console has a extendable handle. The LCD opening and closing buttons are located at the side of the LCD.



*Fold-away trolley*



This configuration's compact size and light weight make it possible to move the **MyLab** very easily.

The fold-away trolley includes a front compartment to hold accessories.

**Mobile Configuration**

Two trolleys are available to set **MyLab** in a mobile configuration: a hospital trolley, including an insulation transformer, and a height-adjustable trolley, particularly suitable for applications like anesthesia.

*Hospital trolley*



The hospital trolley can house a video recorder and a video printer. It has a compartment for additional accessories and several probe carriers.

The trolley has a master switch to power up both console and peripheral units. The back wheels are fixed; the front wheels are swivable and have brakes

*Height-adjustable trolley*

The trolley includes a compartment for accessories and a shelf housing up to two video printers.

The upper panel can be moved either up or down through the lever located on its side.

All four wheels are swivable and have brakes.



## Battery

**MyLab** can be equipped with an internal battery pack, composed of two batteries, working when no mains power is available.

### Note

The battery pack is installed by ESAOTE personnel. This person will be responsible for its installation and for ensuring that the system is working properly.

A fully charged battery ensures more than one hour of scanning.

### WARNING

When **MyLab** is equipped with its internal battery, do not leave the system exposed to direct sunlight.

### CAUTION

If some smell is noticed on a **MyLab** equipped with its internal battery, stop immediately using it and contact Esaote personnel.



Icon of battery under charge

When the system is connected to the power mains and the main switch is on ON, the battery is continuously charged, even if **MyLab** is switched off. On the other hand, the battery discharges whenever it is disconnected from the power mains.

Configuration	Discharging time
<b>MyLab</b> powered by battery	1 hour and 20 minutes
Battery auto-discharging	Ninety (90) days

### CAUTION

The battery discharging time could be less when the battery pack is worn out.

Refer to next chapter for further information

When the charging level of the battery pack reaches the minimum threshold needed for working, a flashing yellow frame surrounds the battery icon and the system emits an intermittent beep. The residual operating time is displayed besides the battery icon. Either connect the system to the mains power or switch the system off. **MyLab** automatically switches itself off when the residual operating time is expired.

### Battery status led and ON/OFF button

The battery led is located besides the ON/OFF button on the control panel. The battery led colour indicates both the status of the battery and the main power connection.

Led Colour	Meaning
GREEN	<b>MyLab</b> is either connected to the main power with its main switch on ON or the battery isn't under charge
YELLOW	<b>MyLab</b> is connected to the main power and the battery pack is under charge
OFF	Either <b>MyLab</b> is not connected to the main power or, the main switch is on OFF

The led color of the ON/OFF button indicates **MyLab** powering status.

Led Colour	Meaning
GREEN	<b>MyLab</b> is on
ORANGE	<b>MyLab</b> is powered (through the battery and/or the mains) and can be switched on. The lighting intensity indicates the powering source (more intense through the mains, less intense if through the battery)
OFF	<b>MyLab</b> is not powered (neither through the mains nor through the battery)

#### Note

Always check both leds, whenever the system has to be used disconnected from the mains

#### Charging Procedure

The best way of charging the battery is to connect the system to the power mains keeping it off. In these conditions the charging cycle lasts around three and a half hours (3.5 h).

During the charging procedure the battery led is orange: the procedure is completed when the battery led turns green.

A battery, which has not been used for a month needs to be charged before working.

#### WARNING

**Charge and discharge the battery only when the environment temperature is between 15°C and 30°C.**

The battery pack is not charged when it is overheated.

#### Note

When the battery is overheated, the status led is green since the pack is not under charge.

*Refer to next chapter  
for further  
information*

When the battery reaches the maximum threshold of its working condition, a red cross is displayed over the battery icon

When this occurs, disconnect the power cable and wait for about two hours before connecting the power cable again, so that the battery cools down.

#### First Use

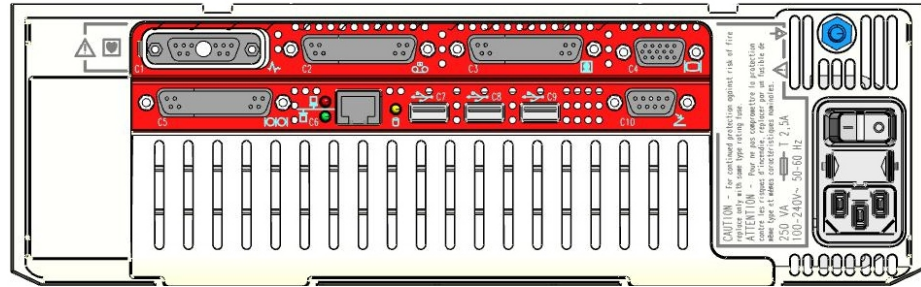
A new battery pack could be partially discharged: before using it for the first time, perform one full charging procedure.

## Installation

### Identifying Connectors and Switch

With the exception of the probes, all connectors are located on the rear panel of the console. The connectors are all clearly identified according to the type of peripheral unit which they serve.

Rear panel

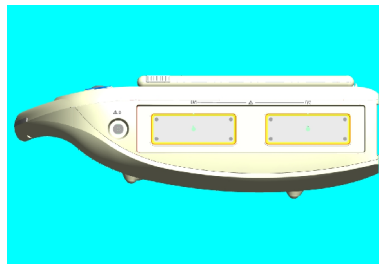


The table below lists the connectors and their intended use.

Ports indicated in italics are not currently in use

Connectors	Use
C1	ECG cable
C2	Video recorder
C3	B/W or RGB printer
C4	SVGA monitor
C5	Physiological signal (breath, pressure or CO <sub>2</sub> )
C6	LAN connection
C7, C8, C9	USB connections
C10	Footswitch input

The rear panel also contains the power cable socket, the fuse box and the system's main switch.



The probe connectors are located on the right. **MyLab** has two connectors: one default and one optional (license enabled) for the electronic probes and one connector for the Doppler probe.

### Installing the Portable Configuration

#### System Connection

Lay **MyLab** on the work surface. Connect the power cable to the mains socket. Connect **MyLab** to a power socket. Press the LCD's safety push-buttons to open the screen.

**Electronic Probes**

**Probes Connection**

The probes can be indiscriminately connected to EA1 or EA2 connectors. Probe connection procedure: make sure that the connector-securing device is in the "OPEN" position, align the pins of the two connectors and carefully fit the probe connector. To secure it, move the securing device to its "LOCK" position.

In the default configuration, only the first probe connector (EA1) is enabled. The second probe connector (EA2) can be enabled by means of an optional software license.

**Doppler Probe**

To connect a Doppler probe, fit its connector with its reference facing up.

**MyLab** is now ready to be powered up. Press the switch to light up the ON/OFF key on the control panel. Press the ON/OFF key to turn the system on.

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**WARNING**

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Never disconnect the probe while it is active. Press the **FREEZE** key before disconnecting the probe.

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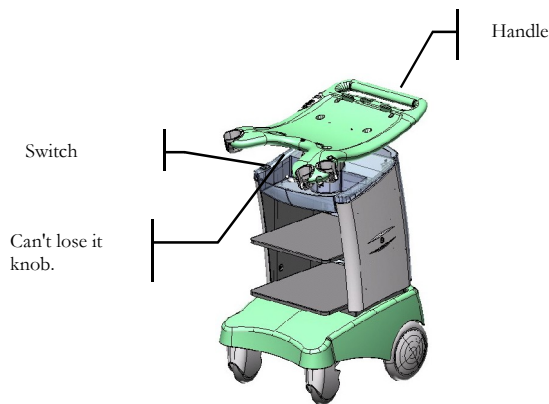
**CAUTION**

---

Do not switch off the machine before initialization has finished. **MyLab** can be switched off only when the window allowing to start the exam is shown - this window is used for inputting the patient data and choosing the application.

**Installation on a Hospital Trolley**

The hospital trolley is supplied by Esaote in a disassembled state, with the relevant assembly instructions. Esaote personnel will open the packaging and will ensure that the trolley is correctly assembled.



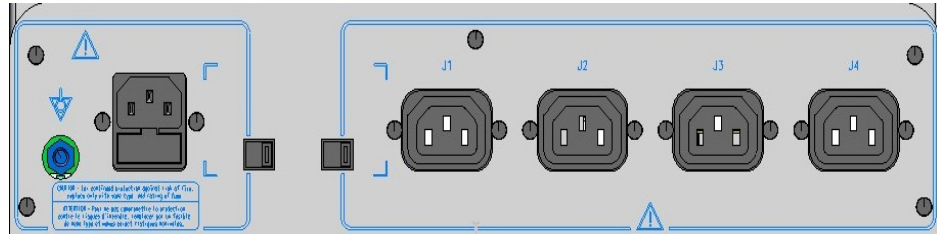
Lay the console on the top surface of the trolley, allowing it to slide to the bottom, so that the profiles of the base match the housings. Secure the console to the trolley, screwing on the 'can't lose it' knob located under the top surface.



**WARNING**

Make sure that the ‘can’t lose it’ knob is completely screwed. If it is not secured correctly, MyLab could come out of the housings and fall out.

Socket panel



Use one of the additional cables supplied with the trolley to power **MyLab** from any of the trolley sockets (indicated by symbols J1, J2, J3 and J4). Plug in the power cable and connect the trolley to the power mains.

**WARNING**

When installing **MyLab**, pay attention that the power cable is not tightly bent, that it could not be possible to trample on it and to be pressed by heavy things.

Press the LCD's safety push-buttons to open the screen. Connect the probes as described in the previous paragraph. To start the system, press the trolley's power switch located on the upper left.

The hospital trolley has brakes on the front wheels, which can be individually operated.

**WARNING**



Don't park the system on a slope.

Don't use the brakes to park the system on a slope.

**Installation on a Height-Adjustable Trolley**

Lay the console on the top panel of the trolley, letting it slide so that the profiles of the base match the housings. Secure the console to the trolley, by securing the milled screw located under the top panel.

**WARNING**

Make sure that the milled screw is completely screwed. If it is not secured correctly, MyLab could come out of the housings and drop down.

**Note**

The height-adjustable trolley is equipped neither with an insulation transformer nor with additional plugs.

**Working position**

On the side of the trolley there's a lever allowing to adjust the working height. Lift up the lever to unlock the vertical movement of the top panel and position the console at the desired height.

**Installation of Fold-Away Trolley**



Release the wheels, by exerting light upward pressure with the tip of your toe on the lever, and open the trolley. The console's support top is fitted to the trolley frame: slight upward force is sufficient to release it and position it horizontally.

Lay the console on the horizontal surface, allowing it to slide to the bottom, so that the profiles of the base match the housings. Secure the console to the trolley, screwing on the 'can't lose it' knob located under the top surface.

**WARNING**

Make sure that the knob is completely screwed. If it is not secured correctly, MyLab could come out of the housings and fall.

MyLab must always be fitted on and removed from the foldaway trolley in its open position.

**WARNING**

When installing MyLab, pay attention that the power cable is not tightly bent, that it could not be possible to trample on it or to be pressed by heavy things.

The trolley has neither a transformer nor additional sockets. To connect MyLab to the power mains and install the probes, follow the console installation instructions. Power up the system by pressing the power switch.

**Working Position**

The fold-away trolley has an extensible handle, with three different positions corresponding to three different MyLab heights: the lowest handle position has to be used for transportation, the other two for working positions. Push the interlocking buttons to release the handle and slide it into the desired position.

**Acclimation Time**

If the system has been left exposed to temperatures which are outside the range given for its correct working (15÷35°C), it must acclimate, before being switched on. The following table indicates the necessary waiting times:

T(°C)	60	55	50	45	40	35÷15	10	5	0	-5	-10	-15	-20
Hours	8	6	4	2	1	0	1	2	4	6	8	10	12

## Adjusting the LCD Screen

Brightness is adjusted by function keys **F6** and **F7** of the alphanumeric keyboard. The function keys are active if pressed in real time simultaneously with the **Fn** key of the alphanumeric keyboard. Key **F6** increases brightness, while key **F7** reduces it.

However, the most important adjustment is the relative orientation of the screen vis-à-vis the operator. The LCD orientation affects the chromatic perception of light. Consult the grey tones or color scale (on left of image) to correctly position the LCD screen.

## Installing the Video Peripheral Units



The "Safety and Standards" manual provides the safety requirements and standards to be observed for using peripheral units with **MyLab**.

The following cables are available for connecting the video peripheral units:

Code	Description
97154 402184	Cable for S-VHS video recorder
97154 402197	Cable for B/W printer
97154 402185	Cable for RGB printer
8830915000	Cable for RGB printer
8830747000	Cable with 2 connectors for 2 printers
8830749000	USB A/B cable

Before installing the peripheral units, make sure that the system is switched off and unplug the power cable from the mains.

*For video requirements see chapter "Technical Specifications"*

From the **MyLab** control panel it is possible to manage both video printers and VTRs. For more information on systems, which are proven to conform to the **MyLab** remote management characteristics, please contact the ESAOTE personnel.

### Installation on Hospital Trolley

- Lock the trolley by engaging the brakes.
- Open the trolley's rear door.
- Fit the peripheral unit on the desired shelf and secure it with the strips.

### Connection to B/W Printer

The cable has a multi-pin connector on one end and BNC and remote connectors on the other end. Connect the cable as indicated in the table below.

Cable connector	Side	Port
Multi Pin	<b>MyLab</b>	C3
BNC	Printer	Video
Remote	Printer	Remote control

**Connection to RGB Printer**

The "RGB Printer" cable has a multi-pin connector on one end and four colored BNC and a remote connector on the other end.

Cable connector	Side	Port
Multi Pin	MyLab	C3
BNC	Printer	Input connectors
Remote	Printer	Remote control

If one wishes to simultaneously connect 2 different printers to **MyLab**, one must use the 2-connector cable, which duplicates port C3. The cable has a multiple-pin connector at one end and 2 multi-pin sockets on the other. The multi-pin connector should be connected to connector **C3** of the rear panel of **MyLab**. In this way, the cables of the printers can be connected to the 2 multi-pin sockets.

**Connection to the Video Recorder**

The cable for the video recorder (VTR) has a multi-pin connector on one end; on the other end, there are two S-VHS connectors (IN, OUT), four audio connectors (two IN, two OUT) and one REMOTE.

Cable connector	Side	Port
Multi Pin	MyLab	C2
S-VHS IN	VTR	S-VHS In
S-VHS OUT	VTR	S-VHS Out
AUDIO IN	VTR	Audio In
AUDIO OUT	VTR	Audio Out
REMOTE	VTR	Remote control

**USB Printers**

**MyLab** can be connected to USB printers. The ports available for USB connections are **C7** and **C8**. The peripheral units must have a B-Type USB connector, to be able to use the available USB cable.

Contact ESAOTE personnel for recommended models and their configuration.

**Power Feed to the Peripheral Units**

- Use one of the additional cables supplied with the trolley connecting the unit to any of the trolley sockets (indicated with symbols J1, J2, J3 and J4).

**CAUTION**

**Do not exceed the maximum absorption limits indicated for insulated sockets. There is a risk of blowing the trolley fuses.**

- Switch on the switches of the peripheral unit/s.
- Close the trolley door

At this point, the system can be connected to the mains, and the entire configuration can be powered, using the trolley main switch.

**WARNING**

**If the peripherals aren't powered through the trolley, do not place them within the patient's area (1.5 m distance - 2.5 m height).**

In this latter case, peripheral units must be powered ensuring compliance with the medical security standards: please contact Esaote Service department to correctly install them.

**Note**

When peripherals units aren't powered through the trolley, it is good practice not to touch simultaneously the patient and the peripheral unit.

**WARNING**

Always power any USB device (such as external USB Hard Disk or USB printer) through the trolley.

**Installation on a Height-Adjustable Trolley**

- Lock the trolley by acting on the brakes.
- Place the peripheral unit on the shelf and secure it with the strips.

To correctly power the peripherals., follow the manufacturer instructions.

**WARNING**

If the peripheral units aren't powered through the trolley, do not place them within the patient's area (1.5 m distance - 2.5 m height).

The peripheral units must be powered ensuring compliance with the medical security standards: to correctly install them please contact Esaote Service department.

**Note**

When peripherals units aren't powered through the trolley, avoid touching the patient and the peripheral unit simultaneously.

**WARNING**

Always power any USB device (such as external USB Hard Disk or USB printer) through the trolley.

**WARNING**

The system must be powered so to satisfy the electrical safety requirements, as specified in the "Safety and Standards" manual. ESAOTE recommends running a current leakage (patient and environment) test when installing in order to check whether the applicable limits of standard EN60601-1 are not being surpassed.

As a further precaution, the operator is recommended to position these peripheral units, whenever possible, outside the patient's area. In this case, peripheral units must be powered ensuring compliance with the medical security standards: please contact Esaote Service department to correctly install them.

**Installation without Trolley**

To correctly power the peripherals, follow the manufacturer's instructions.

**WARNING**

The system must be powered to satisfy the electrical safety requirements, as specified in the "Safety and Standards" manual. ESAOTE recommends running a current leakage (patient and environment) test when installing in order to check whether the applicable limits of standard EN60601-1 are not being surpassed.

As a further precaution, the operator is recommended to position these peripheral units, whenever possible, outside the patient's area (1.5 m for distance - 2.5 m for height). In this case, peripheral units must be powered ensuring compliance with the medical security standards: please contact Esaote Service department to correctly install them.

**Additional Connections****SVGA Monitor**

**MyLab** can be connected to an external SVGA monitor. Connect the monitor's signal cable to the **C4** connector of the rear panel.

**ECG Cable**

The ECG cable should be connected to the connector **C1** of **MyLab**'s rear panel. The ECG cable is wired to generate a I lead. By suitably positioning the electrodes, one can however obtain a II or III lead.

The ECG cable is available as an accessory, both with an IEC lead and with an AHA lead.

**Footswitch**

With **MyLab**, a footswitch for managing the Freeze or other real-time modes can be connected. The footswitch should be connected to connector C10 on the rear panel.

The footswitch is also available as an optional accessory.

**Connection to a DICOM Server**

If it has a DICOM license, **MyLab** can be connected to a DICOM server, by using the LAN **C6** port.

**Moving and Transporting the System****Transport of a Mobile Configuration**

When **MyLab** is mounted on a hospital trolley or a height-adjustable trolley, the wheels and the handle allow the user to easily move the unit. The following precautions must be observed:

- Switch the system off and unplug the power cord.
- If the probes are connected, be sure that they are properly placed in the suitable **MyLab** probe-carriers and that the cables do not reach the floor.
- If the peripherals are also placed on an external additional platform, be sure they are disconnected from **MyLab** before moving the ultrasound unit.

- The wheels of **MyLab** are provided with brakes; be sure the brakes are disabled before moving the ultrasound apparatus.
- Avoid any unnecessary mechanical shocks to the system while moving it.

---

**WARNING**

---

Be sure that the probes are locked in the appropriate holders and the probe cables are properly hanged in the cable hooks during the movement of the system.

To fix the system in a stable way it is necessary to lock at least two wheels.

In hospital configuration do not use the handles to lift the system.

**Transport on Fold-Away Trolley**

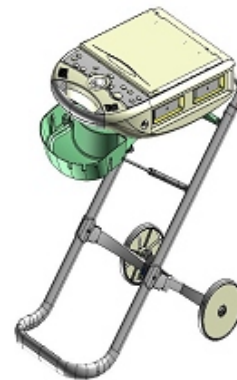
The system must be moved with the trolley in closed position. Remove any connected probes, shut the LCD screen and unplug the mains plug. Bring the handle to its lowest position. When the handle is lowered, a light pressure on it is enough to release the horizontal top and close the trolley.

---

**CAUTION**

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To close the trolley, push the handle only. Any pressure exerted on the hood could damage the LCD screen. Empty the accessories compartment before closing the trolley



Close the wheels: the locking lever hooks automatically.

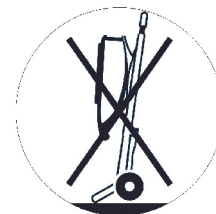
To facilitate transport, the fold-away trolley has an extendable handle. The handle has three different positions. Press the jointing push-buttons to release the handle, allowing it to slide to the desired position.

---

**CAUTION**

---

Do not leave the trolley closed in vertical position. Always leave the trolley in open position to ensure maximum stability.



**Transportation**

- When transporting the system on a vehicle, remind to:
  - Disconnect and remove all probes and peripherals.

- Use the brakes to lock the system in his hospital configuration. Fasten securely the system inside the vehicle.
- Place the system on a flat surface in his fold-away configuration. Protect the system with a suitable packaging during transportation.



## 4 - Control Panel

This chapter provides a brief description of the system controls.

### *The Control Panel*



Control panel components: an alphanumeric section (keyboard, general controls), the trackball, a software keys section (under the alphanumeric keyboard), and a controls section.

Loudspeakers (Doppler) are in the controls section.

### *Alphanumeric Section*

This section includes the TGC controls and an alphanumeric keyboard.

The TGC potentiometers control signal amplification in individual zones of the image. The potentiometers are used to adjust the signal zone by zone.

The alphanumeric keyboard is based on the QWERTY standard. The alphanumeric keys are used for inputting text data in the enabled windows. The **Caps Lock** key presets the keyboard to upper case characters.

The **↑Shift** key is used for typing in lower case or upper case characters (according to how the keyboard is set) or the characters indicated in the top left section of some keys.

#### **Special Characters**

With **MyLab**, the operator can type in the special characters through the Windows® XP standard modalities. To type in special characters, two keys have to be simultaneously pressed. The table below shows the operating modalities.

First key	Second key	Special characters
' (Apostrophe)	e, y, u, i, o, a, c	é, ý, ú, í, ó, á, ç
` (Grave accent)	e, u, i, o, a	è, ù, ì, ò, à
^ (Circumflex)	e, u, i, o, a	ê, û, î, ô, â
~ (Tilde)	o, a, n	õ, ã, ñ
“ (Diaeresis)	e, y, u, i, o, a,	ë, ÿ, ü, î, ö, ä

The following characters are also available, if the operator presses the **Alt** key and the numbers sequence listed in the table below:

Alt + sequence	Special character
0229	å
0230	æ
0248	ø
0223	ß

**Text Entry**



If any of the alphanumeric keys are pressed during the exam, this automatically activates the input of text. All writing operations are managed by the alphanumeric keyboard and trackball, the latter being used to position the cursor.

The **ANNOT** key allows to access a glossary, which can be configured by the user. Refer to the “Advanced Operation” manual for more information on text entry.

**Trackball**

**Standard Mode**

The trackball operates in two different modes. In its standard function, the trackball makes it possible to quickly position the cursors on the screen. The following chapters provide details of the specific functions performed by the trackball in operations requiring it to be used.

Each mode automatically activates the trackball on its cursor:

Mode	Trackball
B-Mode	Transmission focal point
M-Mode, Doppler	LINE cursor
CFM	CFM ROI cursor

When several cursors are present on the screen, the **ACTION** key switches the active cursor.

**Mouse Mode**



**AO**

Refer to "System Configuration" section for trackball configuration

The trackball can then be used to move a pointer on the screen. In Real-Time the pointer can be used to activate software keys functions and to toggle through their menus. In Freeze, Exam review and Archive review the pointer can be used to access archive menus. In this case, the keys placed on the left and right side of the trackball can be set as mouse keys (as enter and context menu keys).

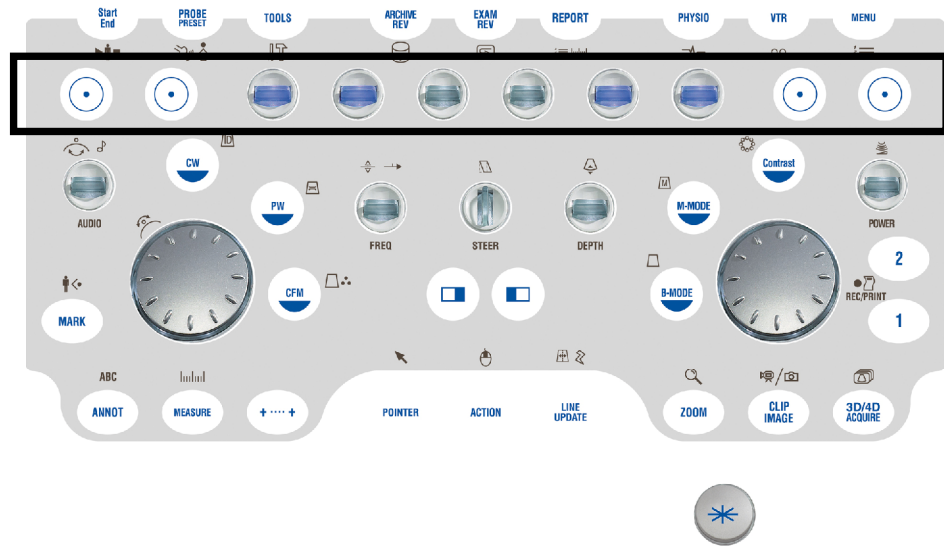
Regardless of the trackball configuration, the enter and context menu keys are respectively indicated as **ENTER** and **UNDO** keys in this manual.

The **POINTER** key makes it possible to change the trackball operation from standard to mouse mode.

**Software Keys**

Software keys are controlled by four buttons and six menu toggles, located within the control panel. The toggles' backlighting makes them user-friendlier: the color of the light corresponds to the background of the software keys.

*This figure shows the position of buttons and toggles for controlling the softkeys on the control panel.*



The functions of these keys vary according to mode, application, and settings. The menu associated to the keys indicates the functions assigned to them.

To correctly use the software keys, keep in mind the following:

- The buttons are shown according to their status.

To be pressed	Pressed	Disabled
Blue	Sky-Blue	Dark Grey

If the button is active, pressing the key enables the displayed function.

- If the displayed menu has more than six scrolling toggles, the sixth toggle (**NEXT/PREVIOUS**) is used to scroll through the menus of the first five keys. Press the push-buttons to select the required setting.

## Controls Section



### Exam Flow

**START END** is the key that opens and closes every exam. The menu is used for entering the patient data and the choice of application, probe and required presets. During the exam, one can select a different probe or preset (key **PROBE PRESET**).

When the exam is finished, press the **START END** key again. It is then possible to archive the patient's data and produce a report on the exam. The system clears the stored data and shows the exam start window again.

*Closing session*

The ON/OFF key activates the closing session procedure.

**CAUTION**

**This is a PC based system; data loss or driver damage may occur if the system is turned off while working. Refer to appropriate sections of this manual for detailed information on when and how to safely power the system off.**

During the exam, option "EDIT ID" of the **MENU** key allows to enter or to modify patient data during the exam.



Key **TOOLS** is used for selecting any software options such as Stress Echo



### The Mode Keys

This key re-activates a B-Mode image in real-time when it is used in any other mode. If pressed in M-Mode, Doppler or Freeze, it restores a full screen bi-dimensional image.



Color Doppler (CFM) is activated or disabled by pressing this key in B- or M-Mode.

In B-Mode, a cursor delimits the Region of Interest (ROI) where color analysis is executed and displayed. The ROI's dimensions and position can be varied with the trackball, activating the ROI cursor with key **ACTION**.

The Soft Keys menu allows the operator to vary the display modality and to switch to Power Color or TVM (Tissue Velocity Mapping). TVM<sup>1</sup> utilizes Doppler to display the heart walls motion, rather than flow.

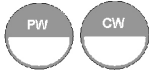
The displayed menu makes it possible to vary the B-Mode and make it coincide with the ROI ("Coincident" view).

<sup>1</sup> TVM and TV modes are enabled only with PA230, PA122, TEE022, TEE122 and TEE132 probes in a cardiac application.

Color M-Mode is shown full screen or with a reference 2D, according to the choices on the displayed menu.



This key activates the M-Mode, and if necessary, its selection cursor (B-Line). There are five possible viewing formats: the format with full screen M-Mode; the dual format, with the screen split vertically with 2D on the left and trace on the right; the split formats, with the screen split horizontally, with the reference 2D above (out of three possible dimensions) and the M-Mode trace below. The viewing format can be preset and varied in real-time through the displayed menu.



The **PW** key is used for activating the Pulsed Wave Doppler (PW), **CW** for activating the Continuous Wave Doppler (CW); both keys activate the positioning cursor if necessary. As in M-Mode, there are five viewing formats: the three split formats, the dual format and the full screen format. In PW, the Real-Time Soft Keys menu allows the operator to switch to the display modality TV<sup>1</sup> (Tissue Velocity). TV sets Doppler filters to display strong signals with low motion such as the heart walls motion, rather than flow.

During the exam, the format can be preset or varied interactively through the menu.

In 2D or CFM, the cursor can be interactively activated or disabled to select the M-Mode or Doppler line. (Taste **LINE UPDATE**). When a trace is active, the same key freezes the trace acquisition and reactivates the 2D reference.

**Gain Knobs**

These two keyboard knobs are used for adjusting the amplification of the echo signal. Gain is increased by turning clockwise and is reduced by turning counter-clockwise.

The knob on the right acts on the B- and M-Mode signals, adjusting amplification over the entire depth of the image. The left knob amplifies the CFM and Doppler gain, according to which mode is active. In Doppler mode, gain acts on both components of the signal (video and audio). The level of the audio signal may be independently adjusted with the **AUDIO** knob, which is disabled in the imaging modes.







The **ADJUST** key, available both in B-Mode and Doppler, automatically adjusts some controls of the active mode to make the echo acquisition easier. To return to the initial conditions, press this key again.



This key stops the current analysis or scan and puts the system in Freeze mode. To re-activate in real-time, press **FREEZE** a second time or directly press the key for the required mode.



According to how the system is preset or to the selections on the displayed menu, these keys activate multiple views of two (dual) or four 2D (quad) images. In Dual mode, one can display two different images or the same 2D or 2D-CFM image simultaneously.

Press any key to activate multiple presentations. The active 2D/2D-CFM is displayed on the left (in the upper box for quad presentation). If the  key or the  key is pressed, the system freezes the acquisition of the 2D/2D-CFM and activates the next () or previous () 2D/2D-CFM.

Press the **B-MODE** key to restore a normal format



The Zoom function, active both in Real-Time and in Freeze, is used to selectively enlarge a zone of the image in B-Mode or in CFM.

Initial pressing of the **ZOOM** key activates a sector cursor that can be positioned (and possibly varied in terms of dimensions) by the trackball on the zone of interest. The second pressure activates the enlarged presentation of the selected zone. Press **ZOOM** to return to a normal format.

Use the **UNDO** key to cancel the enlargement factor cursor from the as yet non-enlarged image.

The **DEPTH** key increases or reduces scanning depth in all imaging modes.

When the **ZOOM** cursor is active, the **DEPTH** key varies the dimension of the area to be enlarged.

The **POWER** key is active in real-time only and is used for varying emitted power during the exam. It operates independently for each mode: e.g. in PW mode, it controls the power of the Pulsed Wave Doppler; in 2D-CFM mode, it controls the power of the CFM.



**Power control must be adjusted to the minimum possible level compatible with an acceptable image. Carefully read the "Safety and Standards" manual with reference to the guidelines on the safety of ultrasound.**

In all applications where the ECG and the second physiological signal are shown, the **PHYSIO** key enables the operator to vary the amplitude of the traces and their position on the screen.



#### **Exam Revision**

During the exam, the operator can save both individual images and sequences (for systems having the clip license). The **CLIP IMAGE** key saves the clips (2D or CFM) in real time and in Freeze, if they are displayed in cine mode. In the case of traces (M-Mode and Doppler) and still frames (2D or CFM) the key saves the image displayed on the screen. The stored images and sequences are displayed as thumbnails on the right of the screen.

The **EXAM REV** key is used for accessing, at any time, the data stored during the current exam. To access the data archive, press the **ARCHIVE REV** key.

**Exam Report**

The following may always be executed: general measurements (key +...+) and access to the calculations package, specifically for the application in progress (**MEASURE** key). When the required key is pressed, the list of available measurements is shown to the right of the image.

**MyLab** can control two different peripheral units with keys **1** and **2**, according to the system's presets. For example, the operator can connect both a B/W printer and an RGB printer and control them separately with these keys.

The **VTR** key activates and disables the VTR (Video Recorder) Menu. The software keys menu enables video recorder play-back and other VTR operations (e.g. fast forward, eject).

**Note**

To ensure correct video recorder operation, **MyLab** must be configured with the correct VTRs and with the relevant settings.

**Settings**

This displays the system menu for all configurations / settings (center name, preset...). The menu is explained in detail in another chapter.

**Advanced Operations**

Keys **MARK**, **REPORT**, **ANNOT**, **ACQUIRE** and **CONTRAST** activate advanced operations: further details on how to use them are described in the "Advanced Operations" manual I.





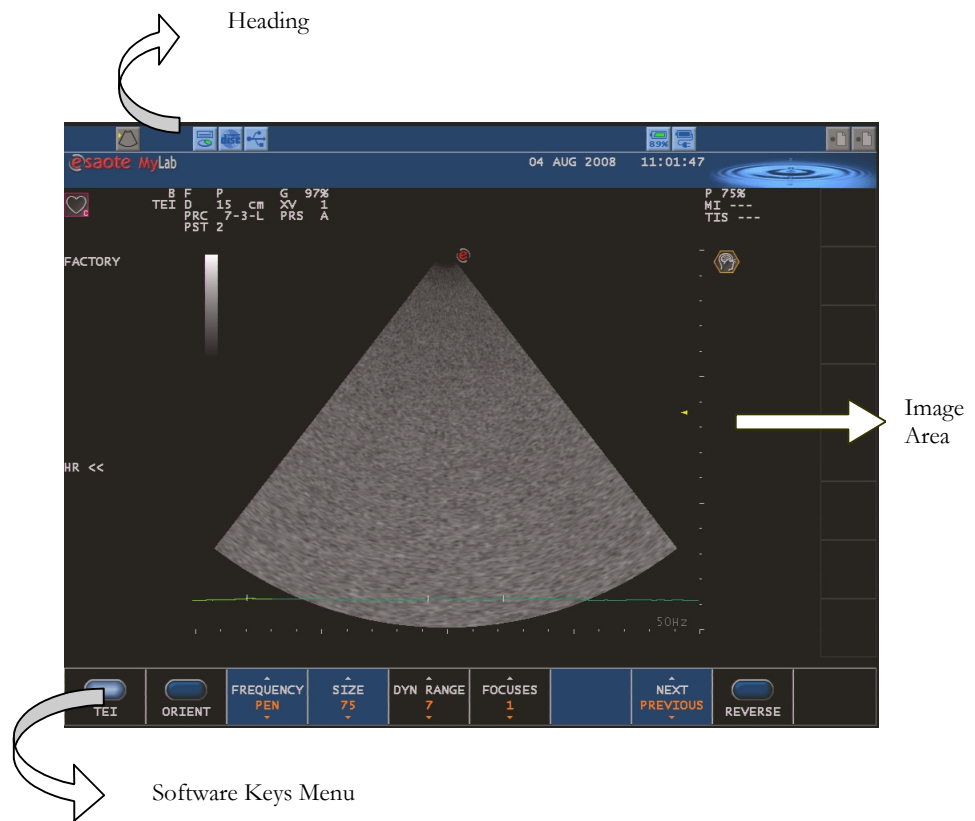
## 5 - Screen Lay-Out

This chapter provides a brief description of the information on the **MyLab** screen.

### Information about the Screen

The screen is subdivided into three main areas:

*The video area (i.e., the screen area which can be managed by video peripherals) is a screen sub-set; it includes most of the Heading and the entire Image Area.*



### Heading

This area is used to display the following icons: trackball, battery (if installed), available archive systems, configured peripheral units; it also shows the following information: center and patient data, and the date.

*For setting centre data, see the appropriate chapter of this manual.*

Patient data are displayed only if entered at the beginning of the exam. The system displays the following patient data: last name and first name, age and patient code.

**Trackball**

The trackball function is indicated by the icon shown at the top left of the screen.

When there are several cursors on the screen, two icons are displayed simultaneously. The yellow icon shown on the left indicates the active cursor; the one in green on the right indicates the next cursor that can be activated. The **ACTION** key switches between cursors.

**Archival Systems**



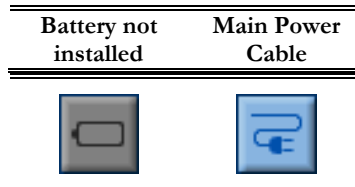
The archival system icons are shown at top left, after the trackball icons. The icon is shown crossed out whenever there are management problems involving the specific archival system.



For more details on data archival, consult the relevant chapter and the Advanced Operations manual.

**Battery**

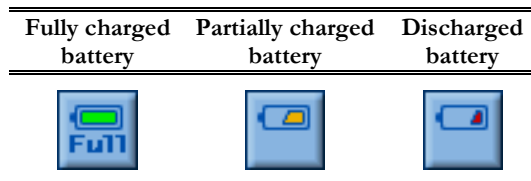
The following icons are displayed on the heading bar when the battery pack is not installed:



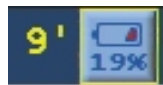
When the battery pack is installed, the battery icon changes depending on its charging status.



Battery Icon



The residual charge (indicated in percentage) is displayed below the battery icon and continuously updated.



Once the minimum threshold of the working condition is reached, the residual operating time, indicated in minutes, is displayed besides the icon, surrounded by a flashing yellow frame.



Battery under Charge Icon

When the battery is charging, its icon replaces the Main Power Cable icon. Once the battery is fully charged, the Main Power Cable icon is displayed again.



**Errors in Battery Management**

The battery icon is shown crossed out whenever an error in the battery management occurs.

The number displayed besides the battery icon indicates the type of error.

**Errors #1 and #2**

These errors indicate a failed access to the battery pack: in this condition both the battery icon and the led of the battery status are not to be considered. The system displays the following message:

Warning: due to some communication errors,  
information on batteries may not be correct.  
Please refer to the User Manual



Should this situation occur, connect the **MyLab** to the main power, contact Esaote Service and, if possible, save the log files as soon as possible (please refer to the “Advanced Operations” manual, “Archive” section for further information).

**Error #3**

This error indicates that one battery couldn't be charged.

Should this situation occur, close the exam as soon as possible by pressing the **START END** key and switch the system off by pressing the main switch placed on the rear panel. Switch the **MyLab** on again and check whether the icon is still crossed out. If the problem persists, contact Esaote personnel.

**Error #4**

This error indicates that the battery pack has reached the maximum temperature allowed for its working conditions. The system displays the following message and shuts down automatically:

Please wait, the system is shutting down.  
Batteries are overheating!  
Please refer to the User Manual.



Should this situation occur, contact Esaote Service and, if possible, save the log files as soon as possible (please refer to the “Advanced Operations” manual, “Archive” section for further information).

**Peripheral Units**

The system is able to simultaneously manage two peripheral units (b/w or RGB printer and the VTR). The icons of the peripheral units are shown at top right of the screen.



If no peripheral unit is enabled, the right side of the header bar shows two gray icons.



The icon is shown crossed out whenever there are management problems involving the specific peripheral unit.

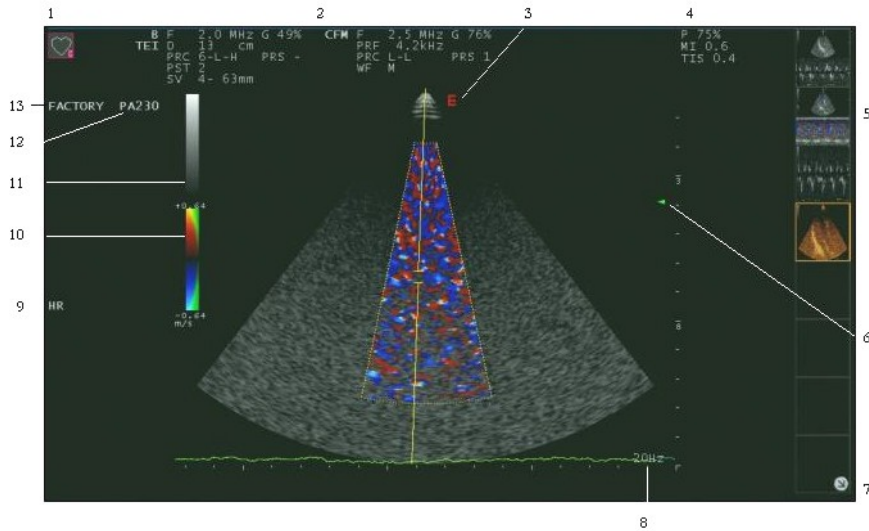
**Real-Time and Freeze**

A specific icon is used for the real-time and frozen image - it is shown on the right of the heading area.

Whenever an image is frozen, a memory bar is displayed (at bottom right) concerning the scrolling memories. The images acquired immediately before the system are frozen and archived in these memories. The trackball can be used to examine the 2D, M-Mode, Doppler and CFM information image by image.

**Image Area**

The display of the image depends on various factors such as active mode, selected application, and transducer. The following figure shows the elements in the image area that are independent of these factors.



Legenda:

Number	Icon
1	Active application
2	Machine parameters
3	Sector orientation
4	Acoustic output data
5	Thumbnails of stored images
6	Focal zone
7	If colored, it indicates images to be scrolled
8	Frame Rate
9	Heart rate
10	CFM scale
11	Imaging scale
12	Active probe
13	Selected preset

**Applications**

The system displays different icons according to the selected application.

**Machine Parameters**

**Imaging**

Parameter	Quantity	Description
F	<i>nnn</i> MHz	Imaging frequency or TEI mode (Resolution or Penetration), when enabled
G <sup>1</sup>	<i>nn</i> %	Imaging gain (Min, %, Max)
AG	<i>nn</i> %	Automatic Gain ( <b>ADJUST</b> key)
D	<i>nn</i> cm	Depth
XV	<i>n</i>	XView algorithm
PRC	<i>n-n-l</i>	Dynamic range, Sharpness, Density (L: Low, H: High)
PRS	<i>n</i>	Persistence
PST	<i>n</i>	Post-processing curve
MV	<i>n</i>	MView mode
SV	<i>nn-<i>nnn</i></i> mm	Sample volume Size and Depth (PW)
⊖	<i>nn</i> <sup>o</sup>	Doppler correction-angle

SV and ⊖ are displayed only if the relevant cursor is active.

**CFM**

Parameter	Quantity	Description
F	<i>nnn</i> MHz	CFM frequency or TVM frequency when enabled
G <sup>1</sup>	<i>nn</i> %	CFM gain (Min, %, Max)
PRF	<i>nnn</i> kHz	Pulse Repetition Frequency
PRC	<i>n-l-l</i>	Sensitivity, Density (L: Low, H: High), Smooth (L: Low, H: High)
PRS	<i>n</i>	Persistence
WF	<i>n</i>	CFM filter (L: Low, M: Medium, H: High)
S	<i>/ or \</i>	Steering orientation (only in Exam Review and Archive Review)

**Doppler**

Parameter	Quantity	Description
F	<i>nnn</i> MHz	Doppler frequency or TV frequency when enabled
G <sup>1</sup>	<i>nn</i> %	Doppler gain (Min, %, Max)
PRF	<i>nnn</i> kHz	Pulse Repetition Frequency (kHz)
PRC	<i>n-n</i>	Pre-processing curves (Dynamic range, Rejection)
PST	<i>n</i>	Post-processing curve
WF	<i>nnnn</i> Hz	Wall filters

<sup>1</sup> G becomes AG if the Auto Adjust function is enabled



## 6 - Exam Performance

This chapter describes the operations usually carried out while an exam is being performed and how to turn the system off at the end of the session.



**Read the Safety and Standards Manual carefully: all the safety characteristics, cautions and warnings listed apply to all exams.**

Remember that it is necessary to be familiar with the mechanical and thermal indices display and the ALARA principle (As Low As Reasonably Achievable) before using any probe. The patient must be exposed to ultrasound for as short a time as possible and only for as long as it takes to achieve the diagnostic information

### *Exam Start and End*

At power-up, at end of the initial auto test and at the start of every new exam (key **START END**) the system shows the screen in the figure on the next page. If necessary, the key **START END** allows activation of real time before ending the initialization phase).

---

**CAUTION**

---

**Do not turn the system off during the initialization phase: the hard disk could be damaged by this operation.**

**Note**

To guarantee data integrity and confidentiality, the system allows to configure a list of users allowed to work on the system. In this case to access the system the user needs to log in and type a password. See the “Advanced Operations” manual for further information.

The Exam Start window is used for inputting patient data, for selecting the application, as well as the required presets and probe.

**Note**

The user may program and add presets to better suit individual clinical needs or preferences, while applications depend on the installed optional licenses.

At any time during the exam, the operator can view and modify the patient's data by pressing **MENU** and selecting the option "Edit ID". The operator can also select a different probe and setting or modify the actual ones by using **PROBE PRESET**.

*Age is automatically calculated from the date of birth. In cardiac applications one can enter height, weight and BSA values.*

---

**WARNING**

---

Do not use the option "Edit ID" to start a new exam as it will update existing patient's data with new entries. To activate a new procedure, always use the **START END** key.

To select fields and options, use the trackball and the **ENTER** key: The trackball moves the cursor; the **ENTER** key fixes its position, opens the drop-down menu and selects the option.

**How to Input Patient Data and Select an Application**

- Move the cursor with the trackball.
- Input the patient's data with the alphanumeric keyboard. Key ← **Back Space** is used to clear input characters.
- To move rapidly through the different items, use the **Tab** ⇌ key.
- Select the required application, preset and probe. The selected application and presets are displayed over a black background, and the selected probe is displayed over a blue field.
- Locate the cursor over OK and press **ENTER** to begin the exam.

The system activates real-time in 2D. The selected application and presets automatically determine the type of format, CFM maps and power values .

The **CURRENT** key retrieves the patient data of the last exam. If a patient is already in the archive, it is possible to retrieve his/her data from an archived exam without having to enter them again. In the window allowing to start the exam, press the **EXAM LIST** key, select the patient from the list of archived exams, then press **RETRIEVE** to load data: the fields will be automatically filled with the data of the selected patient. Start the exam as described above. If a Dicom archive is available, it is also possible to load data from it using the **WORKLIST** key.



**WARNING**

Before beginning the exam, ensure that the active probe displayed on the screen matches the one selected on the Exam Start page.

**Battery Powering**

When the battery pack reaches the minimum threshold of its working condition, the system beeps to alert the user. In this case, connect the system to the main power or refer to the residual working time, displayed besides the battery icon, to be sure to end the exam on time.

**Exam End**

To end the exam, press the **START END** key again. The window displayed at the end of the exam is used to archive the exam. This window shows the patient's first name, the type of activated application and the dimensions of the stored images.

The screenshot shows the 'EXAM' window with the following details:

- PATIENT** PT ID
- APPLICATION** CARDIAC
- ANONYMIZE** NO
- SIZE (MB)** 0.59 (AVI 2.00 - DICOM 1.00)
- LOCAL ARCHIVE**
- EXPORT** TO CD/DVD
- DICOM** TO CD/DVD
- ARCHIVE** TO USB
- SEND REPORT** TO USB

Press <EXAM REV> to review and edit this exam prior to ending it.

Buttons: OK, CANCEL

*Further details are provided in the data archival chapter.*

Before archival, the patient data can be made anonymous. The exam can be simultaneously archived and exported and the corresponding report can be saved on an external medium.

The system automatically presents the window allowing the start of the exam.

**Note**

At power-up, the system prompts the operator to archive the last exam performed if the system was switched off without first closing the exam in progress.

**Physiological Signals**

The position of the ECG trace and of a second physiological signal (breath, pressure or CO<sub>2</sub>) on the screen can be selected and their gain can be adjusted.

- Press **PHYSIO** to display the software keys menu.
- The **ECG** key enables or disables the ECG trace display on the screen; the **AUX** key enables or disables the display of the second signal.

- Modify the amplitude of the desired signal by pressing **GAIN**.
- If necessary, press **POSITION** to move the desired trace on the screen.

Press **PHYSIO** to return to the real-time menu.

## Performing the Exam

By pressing the different mode keys, the specific mode is activated in real-time. If the same key is pressed again, the system automatically returns to the previous presentation.



Press **LINE UPDATE** to display the scanning line. During the scan this key freezes the trace and re-activates the 2D reference; the **PLEX** key activates or freezes the 2D reference, maintaining the trace in real-time.

The keyboard and the commands displayed on the software keys make it possible to optimize presentation quality. Different menus correspond to each format. If the displayed menu has several levels, press key **NEXT/PREVIOUS** to scroll through all functions.

The **CLIP IMAGE** key saves the clips (2D or CFM) in real time and in Freeze, if they are displayed in cine mode.

*For further information about clip formats, consult the next chapters.*

Clips are acquired in Prospective Mode: the **CLIP IMAGE** key starts the loops acquisition. The number of captured loops depends on the set value (**CLIPS DUR** key).

In the case of traces (M-Mode and Doppler) and still frames (2D or CFM) the key saves the image displayed on the screen. Single images are saved with full definition or compressed, whereas sequences are compressed in BMP format, with a minimum loss of information.

### Note

Digital data storage is typically slower than the ultrasound frame rate; the clip frame rate may therefore be lower than the original one. A Warning message is displayed if the archival frame rate drops below 20 fps, as it may occur if multiple tasks (example: burning a CD and saving new clips) are concurrently working.

The thumbnails of the saved data are shown downward in chronological order. A maximum of eight thumbnails are shown: the colored arrow in the thumbnails column indicates that further images are present for scrolling.



The Advanced Operations manual provides a detailed description of all the software keys active in the different modes.

Whenever there is a fault in the Power Supply board, the system automatically freezes showing the following message:

**Please, contact the Service Department**

**POWER SUPPLY ERROR...**



If possible, save the log file (refer to the “Advanced Operations” manual, “Archive” section for further information), switch the unit off and contact Esaote Service department.

## **High Frame Rate Clip**

**MyLab** allows the acquisition of Clip with high frame rate in Cardiac application.

High Frame Rate Clips are acquired in Retrospective Mode. In this modality the system continuously captures consecutive loops and the **ACQUIRE** key stops the acquisition and the last captured loops (whose number is set by **CLIPS DUR** key) are shown on the screen.

High Frame Rate Clips can be acquired only after having set the automatic play.

### **Setting Procedure**

- Press **MENU**.
- Select the “General Preset” option and then “Cine mode” option.
- Set the “Automatic Play” option to ON.
- Press OK to confirm.

### **Acquisition Procedure**

- Press **START END** to view the Start Exam page.
- Enter the patient’s data.
- Select the Cardiac application and press OK to confirm.
- Make sure that the patient’s ECG is displayed correctly.
- Start scanning and press the **ACQUIRE** key to select the desired cycles: the system automatically shows in cine mode the last acquired loops.
- Using the trackball, scroll the memories to select the desired sequence.
- Press **CLIP** to save the sequence.



*High frame rate clip  
symbol (Clip ART)*

Clips acquired with the ECG signal (**PHYSIO** key) synchronization and using this modality are identified by a specific symbol, shown on the left. These clips are indicated as Clip ART clips within the manual.

## Freeze and Scrolling Memories

The **FREEZE** key freezes the image. The system displays the scroll bar of the memories, where the images acquired just before the system was put on freeze are temporarily saved.



Trackball icon



Trackball icon

### How to Scroll through the Memories

Move the trackball horizontally to scroll through the images one by one. The scrolling bar shows the trackball position. Use the **START/END** key to automatically move to the start or end of the sequence.

In the case of multiple formats, several scrolling bars are displayed; the **ACTION** key changes over from one bar to the other, whereas the trackball scrolls through the images of the selected bar.

In Freeze the sequence of stored images can be seen in cine mode if the **PLAY** key is active. The sequence can be seen again at different speeds (use the **SPEED** key).

The **CINE MODE** key displays the entire contents of the memory (when enabled on **FULL**) or single cardiac cycles, when the ECG is shown, or seconds intervals when there is no ECG. Use the trackball to scroll along the bar and display another cycle/interval. If the option **EXTRACT** has been selected, the user can extract from the archived material a sequence of any desired length, by selecting the initial and the final frame. Follow the screen instructions to extract the desired sequence.

The single cardiac cycles and the intervals selected through the **CINE MODE** key can be saved by pressing the **CLIP IMAGE** key.

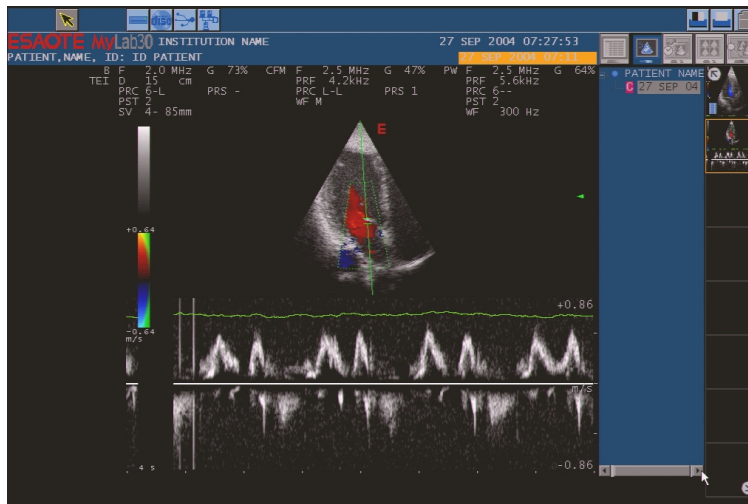


The Advanced Operations manual provides a detailed description of all the software keys active in freeze state.

## Exam Review



During the exam, the **EXAM REV** key enables the operator to review the saved images and sequences. When the key has been pressed, the trackball automatically changes over to pointer mode, allowing the operator to scroll through the thumbnails and select the data item to be reviewed. Software key **SCROLL** enables the operator to scroll through the thumbnails when more than eight images or sequences have been saved.



If there are more than eight saved images and clips, the **PAGE** software key allows the operator to quickly scroll the thumbnails: the next eight thumbnails are displayed when the key is pressed.

The selected image or sequence is presented on the screen. Clips are presented in cine mode: the **PLAY** key disables the kinetic presentation and enables the operator to scroll through the sequence image by image with the trackball.

**Note**

Images are usually compressed, with some loss of information. Please see the technical specifications for more information.

The key **ATTACH** attaches the selected image to the report: in this case the letter “A” is displayed in the bottom left part of the screen, whenever the user reviews an image attached to the report.

**Image Clearing**

To clear a saved image or sequence, select the thumbnails by highlighting the corresponding box and press the **DELETE** key.

The **EXPORT** key is used to export all selected images or sequences to an outside medium.

In Exam revision single cardiac cycles and intervals selected through the **CINE MODE** key can be saved as clip by pressing the **CLIP IMAGE** key.

**Annotations**

If any of the alphanumeric keys are pressed during the exam, this automatically activates the input of text. All writing operations are managed by the alphanumeric keyboard and trackball, the latter being used to position the cursor.



The **ANNOT** key provides access to a user-settable glossary. The Advanced Operations manual describes how to create and use the glossary.

## ***System Shut Down***

---

**CAUTION**

---

This is a PC based system; data loss or driver damage may occur if the system is turned off while working.

This shut down procedure is always recommended; it is **MANDATORY** that the operator interrupts any pending PC operation prior to turning the system off. Make sure that no heading archival system icon has a flashing yellow frame; this would indicate that there is a pending PC operation, which must be completed, before shutting down the system.

Press the ON/OFF key to start the closing procedure. Press the mains switch placed on the rear panel to turn the system off.

**Note**

If the system isn't correctly shut down, a message will be shown at next switching on.

## **7 - Measurements and Calculations**

This chapter describes how to access the generic measurements and the specific calculation packages of the applications.

### **General Information**

Measurements can be made on frozen, stored and archived images. The available measurements are shown on the right of the image. The messages displayed on the screen guide the operator through the stages, facilitating measurement execution. The results are shown on the left of the image.

Clips are compressed for digital storage. Compressed files involve a minimal loss of information (see Technical Specifications Chapter 11). The Compression algorithm used by **MyLab** ensures the preservation of the image features for the reporting functions.

---

**WARNING**

This symbol is displayed on the screen when the image features, compared to the original one, may not be optimal for the reporting functions.

**To select the views and the positioning of the cursors, we urge the operator to act according to current medical practice and the instructions of specialists in this subject.**

**Note**

Always enlarge the format to maximize the structure/signal to be measured.

If possible, use the full screen formats for M-Mode and Doppler measurements.

The system cannot be used to measure images with ambiguous calibrations. An error message is shown on such images when the measurement is attempted.

## Generic Measurements

The generic measurements feature makes it possible to rapidly measure, for example: distance, area, time and speed.



This key activates the generic measurements menu. The system shows the list of available measurements, which are automatically identified according to active mode and application. Software key **MEASURE** is used for rapidly selecting the required measurement. The measurement shown in yellow is immediately operational.

Following the instructions on the monitor, position the cursors with the trackball and confirm the position by pressing **ENTER**. The **UNDO** key can be used to restart a measurement before it has been confirmed. The **Back Space** deletes point by point the traced line. The value being measured is displayed in real-time on the left of the image.

### Selective Deletion of a Measurement

- Activate the trackball as a pointer by pressing **POINTER**.
- Position the pointer on the measurement to be deleted (the measurement is shown in yellow).
- Press the **CLEAR** key to delete the measurement.
- Press **POINTER** again to return to the measurements menu.

The **CLEAR ALL** key deletes all measurement cursors and the values shown in the measurements field from the screen.

The **ADD TO RP** key adds the generic measure to the exam report: after this key is pressed, the system asks to rename the measure. The renamed measure will then be available both in the report and in its preview.



The Advanced Operations manual provides a detailed description of the generic measurements available in every application.

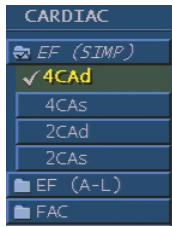
## Specific Calculation Packages

The specific calculation packages are based on the measurements to be executed on identified anatomical structures.





To access the specific calculations, press the **MEASURE** key. The system automatically identifies the calculations package according to the selected mode and application.





### How to Select a Measurement

The list of executable measurements is shown on the right of the screen. The measurements are arranged in groups (identified by the symbol ) , which correspond to specific anatomical structures. Each group includes the measurements executable in that structure. To display the measurements included in a group, position the trackball on the group and press the **EXPAND** key.

Executed measurements are marked by the symbol .

- Freeze the image and press **MEASURE**.
- Using the trackball, select the required group (the selected group is displayed in yellow).
- To follow the entire measurement sequence specified by the group, press **ENTER** over the selected group.
- To make a specific measurement press **EXPAND**, select the required measurement with the trackball, and press **ENTER**.

The system displays - at the bottom of the screen - the image with the operating instructions for making the selected measurement. The trackball is used to position the measuring cursors, while **ENTER** is used to confirm positioning when requested by the instructions.

To delete an unconfirmed measurement or to delete a measurement selectively, the instructions provided for the generic measurements apply.

The **ACTION** key allows to interrupt the active measure and select a different group..



The “Advanced Operations” manual provides a detailed description of the specific measurements available in each application.



## 8 - Exams Archive

This chapter describes how to archive images and to access the relevant archive.

### Archive Icons

When the system accesses the archive, the relevant archive icons are shown on the right of the heading bar. The active icon is displayed on a dark background, while the icons that can be activated are shown over a blue background. Icons shown in grey are inactive.

To activate the function, locate the trackball over the required icon and press **ENTER**.

### Data Archival



#### **AO**

Refer to the “System Configuration” section of the Advanced Operations manual for further information

**MyLab** has an internal hard disk in which the exams can be archived (local archive). The data can be saved on external supports and on DICOM® format (for systems having a DICOM license), and exported in BMP, PNG, JPEG format or AVI format (see specification for codec information). Exported data cannot be reviewed by the system.

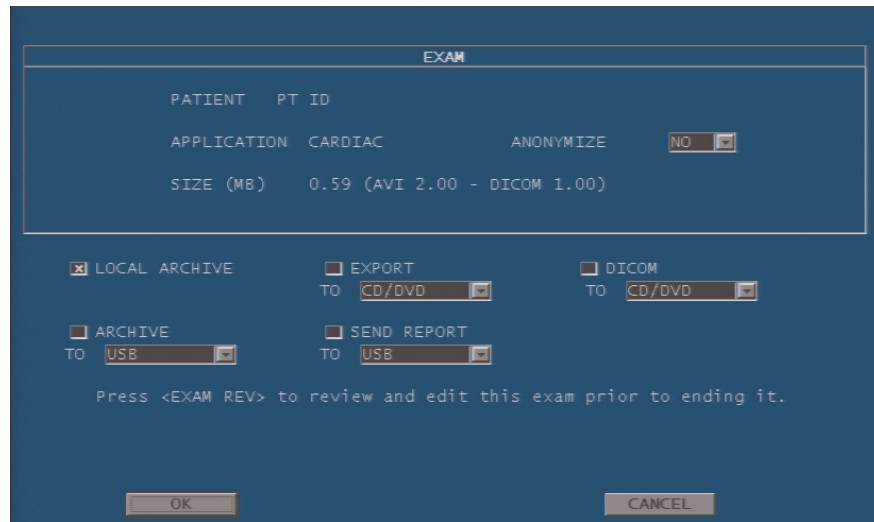
The **CLIP IMAGE** key saves single images (with compressed or full resolution) and image sequences (in compressed format). When the **CLIP IMAGE** key is pressed, the system stores sequences of a preset duration, which can be set from the System Menu (see “Advanced Operations” manual). Data is compressed with a minimum loss of information, with a maximum frame rate of about 25 images.

#### **Note**

Digital data storage is typically slower than the ultrasound frame rate; the clip frame rate may therefore be lower than the original one. A Warning message is displayed if the archival frame rate drops below 20 fps, as it may occur if multiple tasks (example: burning a CD and saving new clips) are concurrently working.

**Archiving the Exam**

During an exam, the images are temporarily stored on the system's hard disk. The exam ends as soon as the **START END** key is pressed. The system shows the window of the exam end, which enables the operator to select the required format DICOM with the DICOM option; BMP, PNG or JPEG for single frames and AVI for clips with the EXPORT option; native format with the ARCHIVE option) and the final archival support. The same window allows to enable the storing of the report (in XML format) on a selectable external medium.



When the exam is archived on CD or DVD in DICOM format, the Biopacs Lite<sup>1</sup> viewer is automatically enclosed in the CD or DVD. In this way the exam can be reviewed in any PC.

Before archival, the patient's data can be made anonymous.

**Archival Procedure**

- If necessary, use the trackball to enable archival and export of the exam
- Select the required medium..
- Locate the cursor on OK and press **ENTER** to confirm.

While data are being saved, the icon for the relevant destination support is outlined by a yellow flashing frame. The frame disappears when the operation ends.

**CAUTION**

**Do not switch off the system nor remove the archiving medium while data is being saved (yellow flashing frame on the destination support). The data and the hard disk could be damaged. If necessary, you may run the Shut Down procedure to interrupt and safely power off the system.**

If no option is selected, all stored data will be deleted.

<sup>1</sup> Biopacs Lite is an Esaote DICOM viewer .

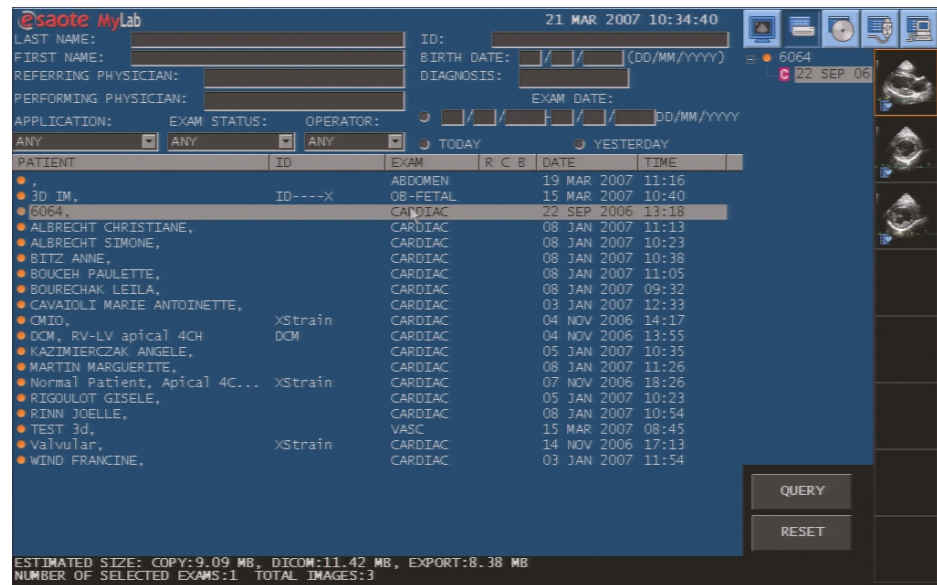
## Review of Archived Exams

The operator can reload and review the patient's exams. The images can be reloaded and a specific exam can be reviewed for each patient.

This key displays the following page.



The image shows the archive consultation window. The relevant icons are shown at top right.



The system displays the list of archived exams and enables the operator to selectively choose the exams to be reviewed, setting query criteria such as the patient's first name, the application and the exam date.

The **RESET** key deletes the set search criteria.

- Use the trackball and alphanumeric keyboard to input the search criteria.
- Locate the pointer on **QUERY** and press **ENTER** to activate the search.

At the end of the search, a list of the exams within the set criteria is presented on the screen. The **SCROLL** key enables the operator to scroll inside the list and select the specific exam. To select several exams, use the trackball to position the cursor and press the **Ctrl** and **ENTER** keys simultaneously.



Archive display icon

After selecting, activate the archive display icon to access the data. The list of selected exams is displayed on the right of the screen next to the thumbnails. Use the trackball to locate the cursor on the required exam and press **ENTER** to confirm.

The system is in exam review status, and, therefore, the same instructions apply.



The Advanced Operations manual provides a detailed description of the possible operations and of the active software keys.

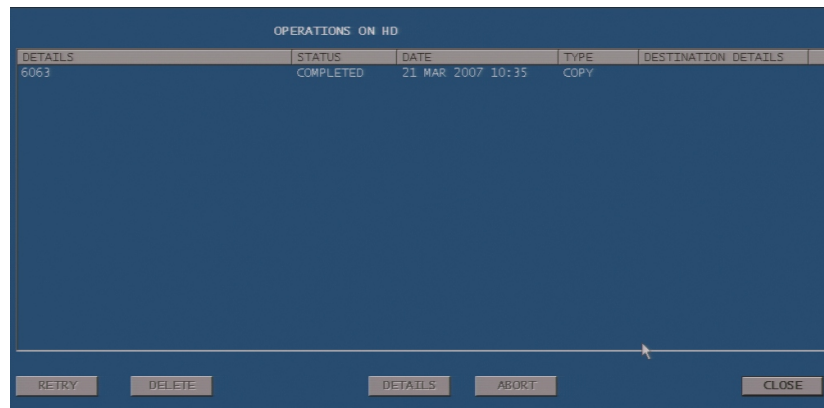
## End of Archive Review

The **B-MODE** or **FREEZE** key closes the archive review session and reactivates real-time. The review session can also be closed by pressing **START END**. In this case, all the open exams will be closed before starting on a new patient.

## Archival Media Management

When the trackball is operating as a pointer, it is possible to determine the space available in the archive. If the pointer is positioned on the specific icon, the system displays the remaining available memory space.

The operator can also control the data transfer operations. Locate the cursor on the icon of the specific support and press **ENTER**.



The displayed interactive window enables the operator to follow the operation.



The crossed out icon indicates management problems of the specific archival support. The interactive window allows the operator to understand which operation has failed, and, if necessary, to repeat (**RETRY**) or cancel the failed operation.

---

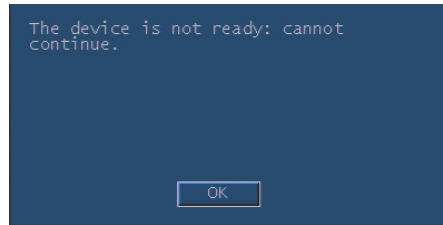
### CAUTION

---

**Do not switch off the system nor remove the archiving medium while data are being saved (yellow flashing frame on the destination support). The data and the hard disk could be damaged. If necessary, you may run the Shut Down procedure to interrupt and safely power off the system.**

#### Writable CDs

Empty disks must be used. If the CD contains data, the system will not allow writing and shows the following message:



### **Rewritable CDs**

Rewritable CDs may be used for archiving data providing such CDs are empty.



*CD icon*

The system allows the deletion of data stored on rewritable CDs. Locate the cursor on the CD icon and press **UNDO**. The system displays the CD management menu: select "ERASE DEVICE" and press **ENTER**.

### **Rewritable DVDs**

Empty single-layer DVDs must be used; if the DVD already contains some data, the system won't allow to burn them .

### **Double Layers DVDs**

Double Layers DVDs are not supported by **MyLab** systems.

### **USB Pen Keys**

The USB pen keys are managed in multi-sessions. Data can be added to data already on the device.






## 9 - System Menu

This chapter describes how to set and configure the system.

### Configuration Menu



The **MENU** key provides access to the system menu. The key can be pressed in any environment. The system displays the possible options.

Some menu options are arranged in groups (identified by the symbol ). To display the options included in a group, position the cursor on the group and press the **ENTER** key.




- Select the option with the trackball.
- Press **ENTER** to continue.

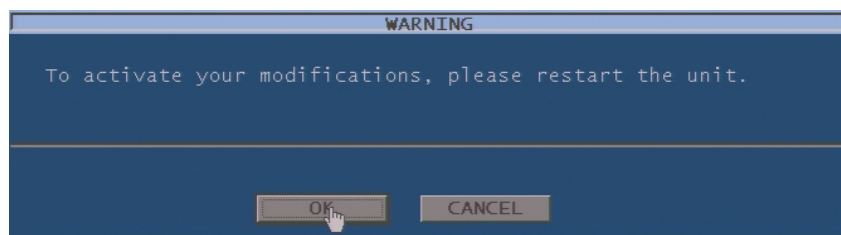
### General Preset

The available options are internally organized in folders. To access the different folders, position the trackball on the required folder and press **ENTER**.

#### Parameter Setting

- Position the trackball on the field to be varied and press **ENTER** to confirm.
- Use the alphanumeric keyboard to type in the characters.
- In the window menus, select the required option and press **ENTER** to confirm.
- Press OK to confirm.

The **Tab**  key is used to change over quickly from field to field; the keys **Pgup**  and **Pgdn**  open the window menus and scroll among the relevant options. After the modifications have been confirmed, the system displays following message:



**Date/Time**

This enables the operator to change the date and time, and to select the required data and time formats (12 or 24 hour).

**Center**

This field is used for inputting the name of the hospital/clinic, which will then be shown on the screen.

**Video**

This field is for selecting the required video standard (PAL or NTSC) and the video signal (S-VHS or VHS).

**Measure Units**

The temperature scale can be set to Celsius or Fahrenheit. This option also allows to select the measure units for height and weight.

**Cine**

The option allows the user to define the default size of the memory to be used for sequences and to set the default speed.

**Archival**

When set to auto, the unit automatically saves the exam, per user preset, at the end of the exam without displaying the end exam window.

**Trackball**

The menu allows the user to set the functioning mode of the trackball left key. The key can be configured as the enter key (**ENTER**) or as the context menu key (**UNDO**).

**Other**

The option allows to define whether the frame rate shall be displayed and to set the exam type for OB exams (whether in Fetal Age or Fetal growth).

## **Application Preset**

This option allows to set the active plan of a transrectal probe and to modify and save both the gray map used in the active application and the configurable parameters of the XView algorithm.

## **User Preset**

This procedure allows to create a new preset (**ADD** option), and to modify (**EDIT** option) or cancel and existing one (**CLEAR** option) for standard applications. The set presets can be selected in the page allowing the start of the exam or with the **PRESET** button.

**Parameter Setting**

The menu is organized into one general folder, four mode folders and till four probe folders.

**General Folder**

With this menu, the operator can assign a name to the new preset and associate a new application with it from among the available applications. From this folder the operator can set general parameters such as the display of the ECG trace, clips duration, and the final archival support for the exam. In the OB application, this folder allows to preselect the exam type (fetal growth or fetal age).

**Mode Folders**

Every mode (B-Mode, CFM, M-Mode and Doppler) has a specific folder, inside which different parameters can be set.

To save the settings, press **SAVE**: the set presets will become operable when the system is next powered up. The **CLOSE** key closes the menu without saving any modifications that may have been made.

The factory presets for the required application (**FACTORY SETTINGS** key) can be set from the same window.

**Probe Folders**

For the active preset the system allows to configure four probes. Each probe can be individually configured. As soon as a probe has been selected, the system shows its parameters.

Parameters are grouped in three settings types: power values, other parameters (number of transmission focuses, 2D sector size etc) and gains.

To save the settings, press **SAVE**: the set presets will become operable when the system is next powered up. The **CLOSE** key closes the menu without saving any modifications that may have been made.



The "Advanced Operations" manual provides a detailed description of which parameters can be set in the individual modes.

**Tools Preset**

This option allows to modify the labels used in Stress Echo to identify the single views and to configure the QIMT settings and Stress and CnTI protocols.

**Report Customization**

**MyLab** offers different menus allowing to configure the desired report. The following table lists the available setting options (key **MENU**):

Option	Setting
Header	Headers setting
Print Layout	Selection of data to be printed.
Edit Report Observations	Observations setting.

**Report Print Layout** Selection of the template.

This option allows to choose which data have to be inserted into the report, to create a glossary to be used when writing the report, customize the print layout.



Section "System Menu" of the "Advanced Operations" manual details how to configure the report.

**Application Measurements**

This option allows the user to configure the available measurement packages by using the **MEASURE** key. **MyLab** allows to program different packages for each application. For each measurement group, one can give a description and enable the desired measures.



The "Advanced Operations" manual provides a detailed description on how to optimally configure the measurements package.

**Generic Measurements**

This option allows programming the generic measurements available for each application.

**Glossary**

When in annotation mode, the system allows the user to enter pre-existing sentences or words. Through this option, applications libraries of words can be created.



The "Advanced Operations" manual provides a detailed description on how to optimally configure the application glossary.

**Peripherals**

The system can remotely control (with keys **1** and **2**) recording by VTR (for specific models) and printing (in B&W and color).

The menu also enables the operator to select the required print format. The icon of the set printing format is displayed next to the printer symbol of the relevant printer, in the heading bar.

---

**CAUTION**

---

**Do not switch the system off until the printing stage has been completed.**

**Network Drives Configuration**

Allows to configure one network drive to be used as archive.

## ***Dicom Configuration***

This option allows configuration of the Dicom servers and printers to which the **MyLab** is connected.

## ***Export Settings***

This option allows the user to select the format of the single images and clips to be exported.

## ***Save & Load Presets***

This option allows the user to save the user presets and reload them when desired.

## ***Security***

This option allows to define the list of users allowed to work on the system: in this case the access to the system can occur only through a log in procedure, by entering a password.

## ***System Information***

This option displays the system's hardware and software configuration. If a demo license is installed, it is possible to control its expiration date in the corresponding folder.

## ***Licenses***

The license number can be input from this option. The license becomes functional at the next power up.

## ***Edit ID***

This option allows to modify the exam data.



See the "Advanced Operations" manual for further information.



## **10 - System Maintenance**

This chapter describes the system's main maintenance operations.

### ***Cleaning of System and Peripheral Units***

Periodic cleaning of the system and any connected peripheral units is important. Peripherals may contain dust sensitive parts, the reliability of which could be compromised in the event of poor maintenance.

To clean the peripheral units, follow the instructions supplied by the manufacturer.

---

**WARNING**

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***Cleaning the system***

**Turn off the system before any cleaning operation.**

To clean the system, use a soft cloth slightly dampened with water. If necessary, apply a small amount of ammonia- and alcohol-free, not abrasive detergent onto a clean, soft cloth and then wipe the surface. Switch the system off and rub the outside with the cloth.

---

**WARNING**

---

**Make sure that the detergent has completely evaporated before turning on the equipment.**

---

**CAUTION**

---

**Do not use any type of ammonia-, alcohol- or benzene-based cleaners on the case.**

***LCD screen***

To clean the LCD screen, use a soft dry cloth, lightly rubbing the display surface.

---

**CAUTION**

---

**Do not use detergents or other liquids directly on the screen. Immediately dry any drops of water that may fall on the screen as they could stain the screen.**

***Cleaning the Trackball***

The trackball is easy to remove. With the machine switched off, rotate counter-clockwise the crown surrounding the trackball, exerting light downward pressure. Remove the crown and then remove the trackball.

Clean the trackball with a soft cloth lightly dampened with water or alcohol. Refit the trackball in its housing and lock it by rotating the crown clockwise.

***Cleaning the Probe  
and Gel Holders***

These items (available in the mobile configuration) are easily removed from their location for cleaning and can be washed in a mild soap solution. Make sure they are completely dry prior to replacing them.



To clean the transducers, refer to the manual entitled "Transducers and Consumables".



## 11 - Technical Specifications

This chapter describes the technical specifications<sup>1</sup> of the **MyLab** product.



### Note

Special packages (such as Stress Echo) are listed and described in the specific sections of the Advanced Operations manual.

### MyLab Models

#### MyLabFive Model

#### Basic Configuration

**MyLabFive** basic configuration consists in the imaging system licensed for TEI and General Imaging applications, i.e.:

- Abdominal
- Breast, Thyroid, Small parts
- Musculo-skeletal
- Pediatric

#### Optional Applications

The system can be equipped with the following licenses to enhance its application range:

License	Application	Features
Cardiac	Cardiac, Pediatric cardiac	Presets, Calculations; ECG
Vascular	Peripheral Vascular, Adult cephalic	Presets, Calculations
Urology	Urology	Presets, Calculations
Obstetric	Obstetric, Fetal, Gynaecological	Presets, Calculations

<sup>1</sup> The specifications can be modified without prior notice.

**Optional Modes**

The system can be licensed for the following additional modes:

License	Feature	Note
Doppler	Pulsed Doppler	-
Doppler CW	Continuous Doppler	-
CFM	CFM	-
TVM	TVM	Probe dependent
CMM	Compass M-Mode	Probe dependent

All CFM and Doppler licenses require a dedicated Doppler/CFM board. The TVM license works only if a CFM license is already available. The CMM license requires a cardiac license first.

**Optional Features**

The following features are optional:

License	Feature
QIMT	Quality Intima Media Thickness (probe dependent)
Clip	Clip digital storage
FWI	Fetal Weight Index
Stress	Stress Echo
DICOM	DICOM classes <sup>2</sup>
Xview	Xview algorithm
M-View	Multi-Angle View Mode
CnTI	Contrast
XStrain	Offline (on MyLabDesk) Strain analysis

**Portable Configuration**

This section describes the product when fully loaded with all options; refer to the previous paragraph for basic configurations.

**Display**

- 15" LCD, TFT technology, color XVGA

**Probe connectors**

- 2 electronic probes (1 default, 1 optional (license enabled))
- 1 Doppler probe

**Video I/O**

- S-VGA
- RGB
- S-VHS
- Composites

<sup>2</sup> Refer to DICOM Conformance Statement on [www.esaote.com](http://www.esaote.com) for further details

### **Connectivity**

- LAN RJ45
- 3 USB
- Dedicated connectors
- ECG input
- Foot switch
- Laser/Ink jet printers
- Complies with IHE integration profiles<sup>3</sup>

### **Image Files**

- Formats
  - Standard output file formats (BMP, PNG, JPEG, AVI)
  - Native and Dicom formats
- Clips characteristics
  - AVI Codec: Microsoft® MPEG-4 V2 and MS-Video1 and MS-WMV 9
  - Compression: JPEG lossy compression (about 70% of quality)
- Still frames / BMPs are stored at full resolution

### **Software**

- Operating system: Linux and windows XP
- Multi-lingual

### **Biometry**

- Basic and advanced calculation, application dependent
- Annotations, bodymarks

### **Keyboard**

- Qwerty for entering patient data
- Echographic
- 8 Potentiometers for TGC
- Knobs for general gains
- Keys for modes, peripherals management and controls

### **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 mm<sup>2</sup>
  - Length: 2,5 m
- Power cable with NEMA socket
  - Socket type and amperage: 510 IEC 320/C13 type; 13A-125V
  - Plug type: NEMA 5-15; 13A-125V
  - Conductors: 3
  - Section: AWG 16
  - Length: 3 m

### **Dimensions**

- 170 (H) x 375 (W) x 460 (D) mm (with closed LCD)
- 440 (H) x 375 (W) x 500 (D) mm (with open LCD and extended handle)

---

<sup>3</sup> Refer to [www.esaote.com](http://www.esaote.com) for further details

### **Weight**

- About 9 kg

### **Power Supply**

- Voltage operative range: 100 ÷ 115V and 200 ÷ 240 V
- Mains frequency: 50 ÷ 60 Hz
- Power consumption: ≤ 250 VA

### **Battery**

- Duration > 300 charging cycles
- Battery life: Three years

### **Operating requirements**

- Temperature: 15÷35°C
- Humidity: 15÷95 % (not condensing)
- Pressure: 700÷1060 hPa

### **Storage requirements**

- Temperature: -20 ÷ +60°C
- Humidity: 5÷95 % (not condensing)
- Pressure: 700÷1060 hPa

## **Hospital Configuration**

### **Trolley**

- Housings:
  - Upper space about 33 (L) x 14.5 (H) x 38.5 (D) cm
  - Lower space about: 33 (L) x 17 (H) x 41 (D) cm
- Dimensions: about 50 (L) x 90 (H) x 51 (D) cm
- Weight: about 31 kg
- Auxiliary power plugs: 4 insulated

### **Configuration Dimensions**

- About 50 (L) x 99,5 (H) x 51 (D) cm

### **Configuration Weight**

- About 45 kg

### **Power Supply**

- Voltage operative range:
  - 100 ÷ 115V
  - 200 ÷ 240 V
- Mains frequency: 50 ÷ 60 Hz
- Power consumption: ≤ 600 VA
- Available power for peripheral units: up to 600 VA
- Fuses: 5A 250V T (200-240V); 10A 250V T (100-115V)

## Height-Adjustable Trolley

### Dimensions

- 51 (L) x 84-106,6 (H) x 65,4 (D) cm

### Weight

- about 24 kg

## Collapsible Trolley

### Dimensions

- 38 (L) x 69,5 (A) x 63,3 (D) cm

### Weight

- about 5.8 kg

## Safety Standards

- EN 60601-1
- EN 60601-1-1
- EN 60601-1-2
- EN 60601-1-4
- EN ISO 10993-1
- EN 60601-2-37
- EN 61157
- AIUM / NEMA UD-2 / UD-3 – FDA 510(k) Track 3

## Probes

### Phased Array Probes

Probe ID
PA230
PA121
PA122
PA023

### Linear Probes

Probe ID
LA332
LA435
LA522
LA523(P)
LA424

**Convex Probes**

<b>Probe ID</b>
CA123
CA1421
CA430
CA421
CA431
C5-2 R13
CA631
CA621
CAB411*

\* Only for the Italian. market

**Special Probes**

<b>Probe ID</b>
TEE022
TEE122
TEE132
EC123
EC1123
E8-5
R10P
TRT33
IOE323
LP323

**Doppler Probes**

<b>Probe ID</b>
2 MHz
5 MHz
HF CW

**Video requirements**

**RGB Printer**

- Input: RGB SYNC
  - RGB (analog): 0.7 Vp-p, 75 ohm
  - SYNC : 5 Vp-p
- Connectors: standard BNC
- Safety standard: IEC 950 ◦ EN60601-1

**blw Printer**

- Input: Video composite (1 Vp-p, 75 ohm)
- Connectors: standard BNC
- Safety standard: IEC 950 ◦ EN60601-1

**VTR**

- I/O video: YC
  - Y: 1 Vp-p, 75 ohm
  - C: 0.3 Vp-p Color burst, 75 ohm

## MyLabFive - GETTING STARTED

- Tape format: VHS, S-VHS
- Audio traces: 2
- Connectors:
  - Video: 4 pin connector
  - Audio: jack
- Safety standard: IEC 650 o EN60601-1

