



Quick User's Guide

Ibex™ Portable Ultrasound

E.I. Medical Imaging®
Portable Ultrasound Solutions





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FCC Regulatory Information



FCC ID: XMOIBEX
IC: 8512A-IBEX
Contains TX FCC ID: ED9LMX9838
Contains TX IC: 1520A-LMX9838

This device complies with Part 15 of the FCC Rules subject to the following two conditions:

- 1) This device must not cause interference, and;
- 2) This device must accept all interference, including interference that may cause undesirable operation.

WARNING:

Modification of this device without consent of the responsible party may void the users right to operate this device.

EU Compliance



Usage restrictions apply.
See documentation

AT	BE	CY	CZ	DK	EE	FI	FR
DE	GR	HU	IE	IT	IV	LT	LU
MT	NL	PL	PT	SK	SI	ES	SE
GB	IS	LI	NO	CH	BG	RO	TR

EU - Restrictions for Use in the 2.4 GHz Band

This device may be operated indoors or outdoors in all countries of the European Community using the 2.4 GHz Band: Channels 1-13 except where noted.

Usage restrictions:
User must configure **Setup - WiFi Settings Menu - Region Code** for Region of Use.

NOTE:

a) USA-Federal Communications Commission (FCC)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment to outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Exposure to Radio Frequency Radiation.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

b) Canada - Industry Canada (IC)

This device complies with RSS 210 of Industry Canada. Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of this device.

L ' utilisation de ce dispositif est autorisée seulement aux conditions suivantes:

- (1) Il ne doit pas produire d'interference et
- (2) l' utilisateur du dispositif doit être prêt? Accepter toute interference radioélectrique reçu, m?me si celle-ci est susceptible de compromettre le fonctionnement du dispositif.

Caution: Exposure to Radio Frequency Radiation.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website <http://www.hc-sc.gc.ca/rpb>.

CE Declaration of Conformity



Declaration of Conformity No 030809

(Manufacturer:)

E.I. Medical Imaging

(Address:)

348 N Jefferson Avenue

Loveland, Colorado 80537, USA

Declares that the product:

Portable Ultrasound Device for Veterinary Use: Ibex pro and Ibex lite

Conforms to the following Directives:

1. Low Voltage Directive 95/2006/EC Test Report No R09-601-EIM-02-COC 08/09
2. Electromagnetic Compatibility Directive 2004/108/EC Test Report No 090629-1435C 09/29
3. R&TTE Directive 1999/5/EC Test Report No 090629-1435C 09/29
4. EMF Directive 1999/519/EC Test Report No SAR20090803 08/09

Using the following primary standards:

Safety Standards (used as a guide)

EN 60601-1: 1990 + Amendments A1, A2 & A13

: Medical Electrical Equipment - Part 1:
General Requirements for Safety

EN 60601-1-1: 1993 + A1

: Medical Electrical Equipment – Part 1:
General Requirements for Safety 1. Collateral
Standard: Safety Requirements for Medical
Electrical Systems.

EN 60601-2-37: 2001 + Amendments A1 & A2

: Particular Requirements for Safety of
Medical Diagnostic and Monitoring Equipment

EMC Standards:

EN 60601-1-2: 2002

: Electromagnetic Compatibility (EMC)

EN 55011: 2007

: Radiated Emissions - Class A, Group 1

EN 61000-4-2

: Electrostatic Discharge

EN 61000-4-3

: Radiated RF Immunity

EN 61000-4-4

: Electrical Fast Transients/Burst

EN 61000-4-5

: Surge Immunity

EN 61000-4-6

: Conducted RF Immunity

EN 61000-4-8

: Power Frequency H-Field Immunity

EN 61000-4-11

: Voltage Dips, Interruptions

EN 61000-3-2

: Power Line Harmonics and Interharmonics

EN 61000-3-3

: Flicker

EN 300 328 v1.7.1

: ERM Data Transmission in 2.4 GHz Band

EN310 489-1 v1.8.1

: Common Technical Requirements (Radio)

EN310 489-17 v2.1.1

: Specific conditions Broadband Data Transmission

And complies with the relevant Essential Health and Safety Requirements.

I, undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards and is therefore eligible to carry the CE Marking.

Charles Maloy

President, E.I. Medical Imaging

(Name)

(Position)

Loveland, CO

August 3, 2009

(Signed at place)

(Date)

Getting Started

Please read all the instructions and warnings before using the Ibex™ Portable Ultrasound system.

The *Ibex™ Portable Ultrasound Quick User's Guide* provides an overview of the features and functionality of the Ibex family of ultrasound systems. This guide provides you with the information you need to quickly set up, operate, and maintain each model.

The E.I. Medical Imaging Ibex family of ultrasound scanners are internally battery powered veterinary use ultrasound devices. An external AC adapter is provided for charging the internal battery and powering the Ibex scanners.

This guide does not cover the theory or science of diagnostic sonography or clinical veterinary practices. It is intended for users already familiar with ultrasound techniques.

The Ibex family of scanners comes in two models: the Ibex Pro and the Ibex Lite. The Ibex Pro offers a full alphanumeric keyboard and a liquid crystal display (LCD) for monitoring. The Ibex Lite relies on the use of video headsets for monitoring and keyboard functionality.

Product Symbols

Table 1 describes the symbols marked on the devices.

Table 1 Product Symbols








Symbol	Name	Description
	Caution <i>(Consult Accompanying Documents)</i>	You must read, understand, and follow all instructions in this manual including all warnings, cautions, and precautions before using the medical device in veterinary practice. Scanner: Is for veterinary use only. Is not user serviceable. Contact E.I. Medical Imaging if defective or damaged. Use only specified AC adapter/charger.
	Type BF Equipment	The Probe (Patient Applied Part) is Type BF (floating from electrical ground) per the Standard EN 60601-1, which offers a specific level of safety.
	RoHS Compliant	The system is compliant with the RoHS guideline 2002/95/EC
	CE	Device complies with the European Union Low Voltage Directive (LVD) and EMC directive.

Table 1 Product Symbols

Symbol	Name	Description
	Standby	Alternately switch the device between the power-on and standby states.
	USB	USB 2.0 Device I/O Port. Do not connect Ibex ultrasound to any USB connected equipment while using the ultrasound probe.
	Lead Free	All components (e.g. PCBs) are lead free and can be used in lead free solder processes.
<div>IP54</div> <div>IP56</div>	Ingress Protection	<p>Protection from dust and splashing from any direction.</p> <p>Protection from dust and low pressure jets of water from any direction.</p>

Common Features

The Ibex Pro and Lite share several common features. The key difference between the two models is the flip-up LCD display on the Pro model, as seen in Figure 1.

The new design and technology offer complete user flexibility and ease of use.



Figure 1 Ibex Family of Portable Ultrasound Systems

This section covers the following common features:

- The physical features
- Quick facts
- The connectors
- The system access compartment
- The screen layout
- The on-screen menus

Physical Features

The overall features include:

- Light-weight, water-resistant, and easy to clean;
- DuraScan™ technology: impact and dust resistant, cleanable, bio-secure;
- Durable, industrial-grade probe connectors;
- Transducer advancements: Kevlar reinforced, tough grade probe cabling, and extra strain relief for maximum durability;
- Multi-frequency sector and linear transducer compatibility;
- New features: field of view, quick zoom, cine-loop (four-second video playback), compact Flash drive image storage, direct USB link, wireless link, voice tag, track ball navigation, and RFID tag reader feature available;
- Long-lasting four-plus hour lithium battery;
- InSite® technology includes new, redesigned flip-up InSite®2 monitor head-sets for easier use in direct sunlight

Quick Facts

Table 2 lists the part numbers associated with the Ibex Pro scanner and contact information:

Table 2 Ibex Pro and Lite Scanner Part Numbers

Ibex Lite Scanner	Part Number
Ibex Door Gasket	224101
Ibex Lite waist carrying pouch	291870
Shoulder Carrying Strap	291890
Ibex Pro foam outer case carrier	291880
6.25 MHz linear transducer for Ibex ultrasound	290406
8.0 MHz curved linear transducer for Ibex ultrasound	290410
3.8 MHz curved linear transducer for Ibex ultrasound	290420

Table 2 Ibex Pro and Lite Scanner Part Numbers

Ibex Lite Scanner	Part Number
3.5 MHz sector transducer GP-DV with magnetic encoder for Ibex ultrasound	291311
One Gigabyte (1GB) Compact Flash (CF) Card	291651
USB AB Cable 3 ft.	291601
USA Power Cord	291961
Rechargeable Smart Li-ion Battery Pack	291903 (Li202SX-72C)
InSite2 10.8 v Nominal Video Headset	290701
SmartVu monocular headset for Ibex ultrasound system	291721
External Power Supply/Battery Charger (60601-1) Class II Type (Input 100-240v 50/60hz) (Output 15v 4a)	290955 (TR60M15-01E12)
Public contact information	E.I. Medical Imaging 348 N. Jefferson Ave. Loveland, Colorado, 80206 (970) 669-1793

About the Ibex System Body

The Ibex system bodies provide protection against dust and water entering the enclosures as defined in the IEC (International Electromechanical Commission) standards. Table 3 identifies the IEC ratings for the scanners.

Table 3 Ibex System IEC Ratings

System	Rating	Definition
Ibex Pro	IP54	Protected against dust and against water splash from all directions

Table 3 Ibex System IEC Ratings

System	Rating	Definition
Ibex Lite	IP56	Protected against dust and against low-pressure jets of water sprayed from all directions

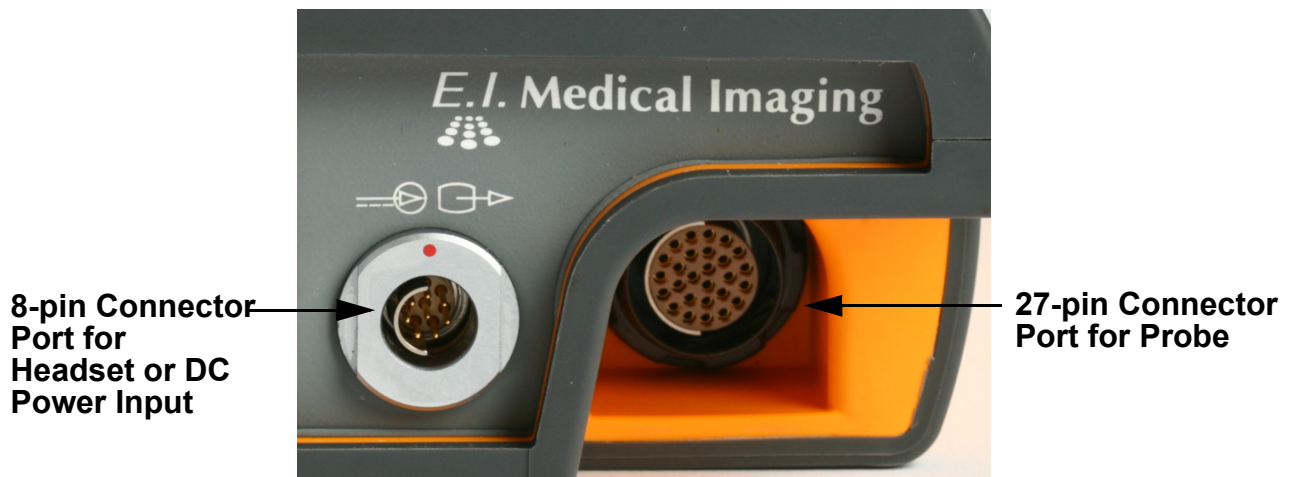
The IEC standard defines degrees of protection expressed as “IP” followed by two numbers, e.g. IP54. These numbers represent the degree of protection. The first digit shows the degree to which the equipment is protected against human contact and solid particles. The second digit indicates its degree of water protection.



Caution – Refer to the section, “Ibex System Care and Maintenance” on page -83, for the proper cleaning instructions.

About the Electrical Interfaces

Figure 2 identifies the electrical interfaces for the transducers, AC power adapter, and the headset.

**Figure 2** Electrical Interfaces

Use the 8-pin male interface to connect either the headset or the DC power input. The 27-pin female interface connects the transducer probes.

About the Access Compartment

The Ibex system houses the battery, the Compact Flash (CF) media, and the Universal Serial Bus (USB) port in a water-resistant system access compartment. To seal the compartment, turn the latch until it clicks into the locked position. Figure 3 shows the features behind the system access door.

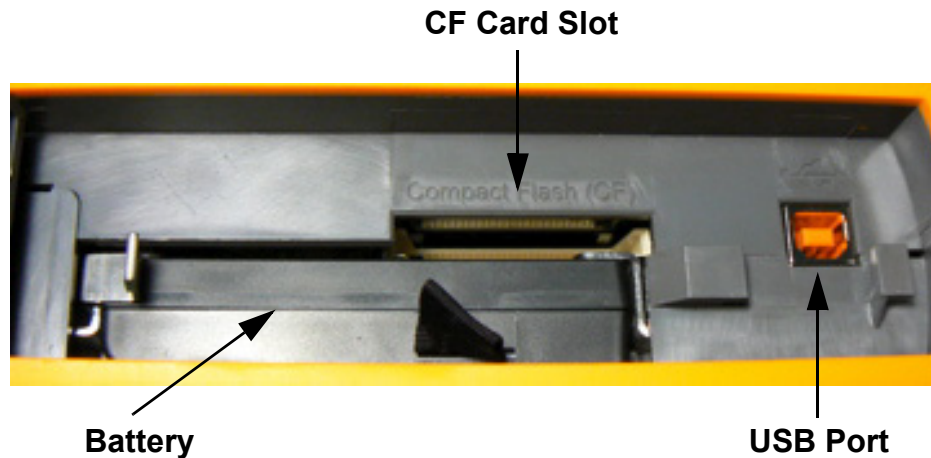


Figure 3 System Access Compartment

The Side Keyboard Buttons

The side keyboard is common between the two systems. When operating the Ibex Pro with the LCD monitor closed, use the side keyboard buttons to access and navigate the scanner's menus. Figure 4 shows the operational buttons.

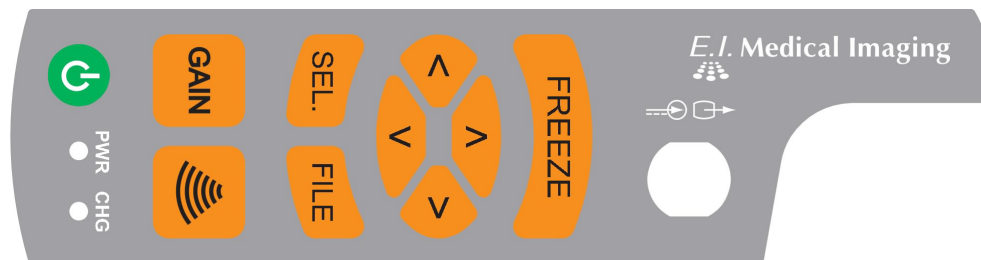



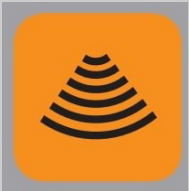



Figure 4 Side Keyboard Buttons

Table 4 describes the functionality of these buttons.

Table 4 Keyboard Buttons

Button Designation	Description
	<p>FILE – Pressing the FILE key opens the File Menu screen.</p> <p>Using the up/down arrows, select a file to preview. Pressing Sel. allows you to recall or delete the selected image, or cancel to return to the file menu.</p>
	<p>SEL. – Pressing the SEL. activates the on-screen menus.</p>
	<p>FREEZE - Press the FREEZE key to freeze and unfreeze the active image on the screen. There are FRZ keys located on selected probes.</p>
	<p>Field of View (FOV) – This key cycles the ultrasound through 25%, 50%, 75%, and 100% of the probe's maximum scan depth.</p> <p>Reducing the field of view displays greater detail for the visible area.</p>
	<p>GAIN – Pressing the GAIN key from an active scan opens the gain settings slider controls.</p> <p>In any text entry fields, pressing GAIN displays the on-screen keyboard. This allows access to both upper and lower case characters, along with numerals and special characters.</p>

On-Screen Keyboard

Figure 5 displays the on-screen keyboard. To access the on-screen keyboard, press the **GAIN** key from any text field menu.

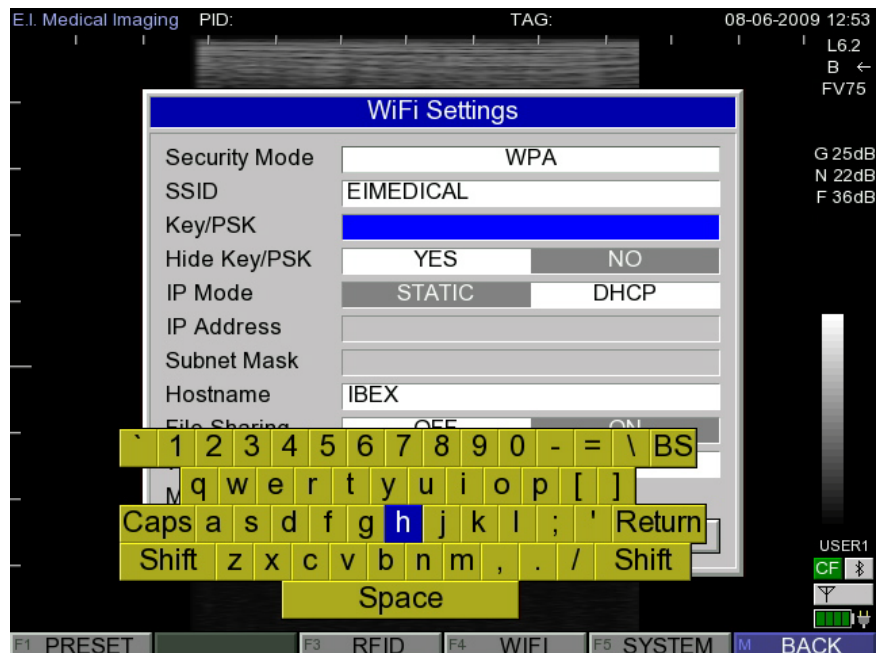


Figure 5 On-Screen Keyboard

Screen Layout

Figure 6 shows the screen layout of the Ibex Pro Scanner.



Figure 6 Ibex Screen Layout



Note: The PID and TAG labels at the top, Figure 6, reference the Patient ID and user definable tag information.

Table 5 identifies the items of interest on the screen.

Table 5 Screen Layout Items

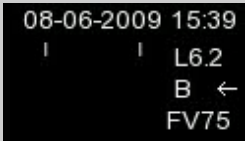
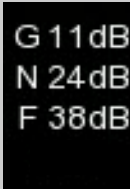
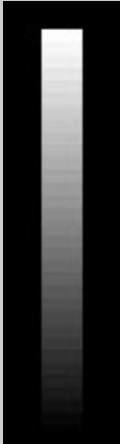
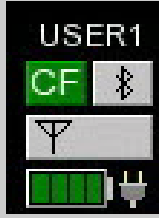
Screen Layout Items	Description
	<p>These denote the transducer type attached (L/S - Linear / Sector); the frequency of the transducer; the scanning mode (B or B+M); and scanning direction (←/→)</p> <p>FV indicates the Field of View setting of the probe. The FV number is a percentage of the probes maximum depth. The four percentages are: 25, 50, 75 or 100.</p>
	<p>These denote the gain settings for the entire field (G); the near field (N); and the far field (F). Information is also provided for different operational states.</p>
	<p>The gray-scale bar is for tonal reference.</p>

Table 5 Screen Layout Items

Screen Layout Items	Description
	<p>These denote the current user preset (USER1 - 5); the presence of a Compact Flash card (CF); Bluetooth® enabled but not connected; the wireless (WIFI) enabled but not connected.</p> <p>The electrical plug icon indicates the AC adapter is connected to the scanner.</p> <p>The battery icon with four green bars indicates a full charge; with one yellow bar, the icon indicates 1/4 charge or less.</p>

Menu navigation functions differently when using the video headset, as when the monitor is down on the Pro, and when using the Lite. Use the side keyboard buttons to perform scanning operations.

Figure 7 displays the first menu accessed when using the video headset. It maintains most of the functionality of the SUPER menu shown previously. Notice that the method of navigating these menus differs.

**Figure 7** The On-Screen Setting Menu

When operating the scanner in this manner, refer to the Lite model instructions to perform all system and scanning operations.

Basic Operations

This section covers the following topics:

- Charging the battery
- Attaching the probes
- Powering on the system
- Replacing the battery
- Inserting and removing the CF card
- Using the video headsets
- Wearing the scanner

About the Battery

The Ibex family of ultrasound scanners can only be charged using the AC adapter supplied by E.I. Medical Imaging. The system has been shipped to you with a partially charged battery. Once you have received and opened the equipment, it is recommended **you completely charge the battery prior to use**. Follow the procedure below for charging the battery.



Note – Battery runtime varies depending on your system configuration and headset.

Charging the Battery

To charge the battery:

1. Ensure that the battery is installed in the system. See the instructions for installing the battery if it is not already installed. Turn the latch to the lock position to ensure the system access door is properly sealed.
2. Connect the AC adapter to the Ibex system by aligning the white dot on the AC adapter connector to the red dot on the connector.
3. Plug the adapter into a 110-240 VAC Outlet.

During the charge cycle the yellow light illuminates indicating the charging process is underway. As the battery reaches its full charge, the light switches off which indicates the battery is at full charge.

The total charge time will range between 120 and 180 minutes from a totally drained battery to a fully charged battery.

Replacing the Battery

To replace the battery:

1. Power off the system.
2. Compress the metal battery retention clip and remove the battery by pulling the cloth tab.
3. Insert the new battery pack by compressing the retention clip and sliding the battery into the compartment. Ensure that the retention clip releases and secures the battery.
4. Power on the system.
5. Lock and seal the door.

About the Transducers

The Ibex ultrasound supports two transducer types: a mechanical sector and a electronic broadband linear. Each transducer connects to the scanner with its 27-pin male connector.



Caution – It is **critical** to power-down the system before changing the transducer types. Failure to do so might cause unexpected behavior.

Choosing the Appropriate Transducer

Each transducer type has a significant advantage over the other, depending upon the application. To achieve the best results and image quality, select the correct style for the specific application.

Powering on the System

On the Ibex Pro system there are two power-on buttons: one on the main keyboard and another on the side keyboard. The Ibex Lite's power-on button is on the side keyboard.

About the Compact Flash Card (CF)

You can safely insert and remove the CF card on a running system. Use the CF card to store and recall images while actively scanning. The CF card also stores the system software upgrade files.

To insert the CF card:

1. Open the system access door and locate the CF card slot above the battery. The slot is labeled as Compact Flash (CF). Insert the 1 GB CF card shipped with the system.
2. Lock and seal the door.

To remove the CF card, simply pull the card from the card slot and reseal the door.

About the Video Headset

The InSight 2 video headset comes standard with the Pro and the Lite ultrasound systems. Additional models are available. Ask your Ibex sales representative for more information.

Connect the video headset, by aligning the red dot on the headset's connector to the red dot above the connector on the scanner.

To adjust the brightness and contrast of the headset optics, locate and press the control buttons on the top of the headset.

Attach the ear-bud headphones to the headset audio jack located on the left side of the headset.

The headset comes with a built-in internal microphone allowing you to record voice memos while operating the scanner and wearing the headset. The microphone is located on the bottom of the headset.

Figure 8 identifies the location of the control buttons, headset audio jack, and internal microphone.



Figure 8 The InSight2 Video Headset Features

The optional SmartVu headset is a compact and portable viewing system attached to a pair of standard Oakley M-Frame Strike® sunglasses. Figure 9 shows the SmartVu monocular viewing system.



Figure 9 SmartVu Viewing System

Wearing the Scanner

The Ibex ultrasound systems can be carried using one of several carrying systems, including the following:

- A thermoform carrying case
- A soft waist pouch
- A shoulder strap

Figure 10 shows wearing the different models.



The Ibex Pro in the Carrying Case



The Ibex Lite in the Soft Waist Pouch

Figure 10 Wearing the Ibex Scanners

Manipulating Images

You manipulate images by adjusting the GAIN settings. The GAIN controls compensate for the reduction in sound amplitude as it travels into tissue. The GAIN controls can intensify the returning signals and display images brighter and more visible on the screen. You can adjust the GAIN for the near field, far field, or the entire field (overall gain). Excessive increase in GAIN will add *noise* to the image. For optimal diagnostic images, adjust the GAIN to produce uniform gray scale responses.

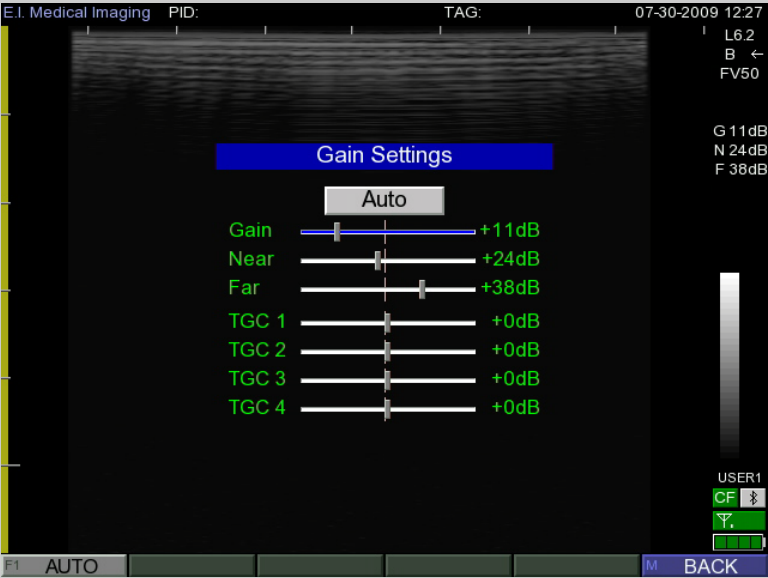
About GAIN Controls

Table 6 describes how to adjust the GAIN controls.

Table 6 GAIN Controls

GAIN Controls

Overall GAIN



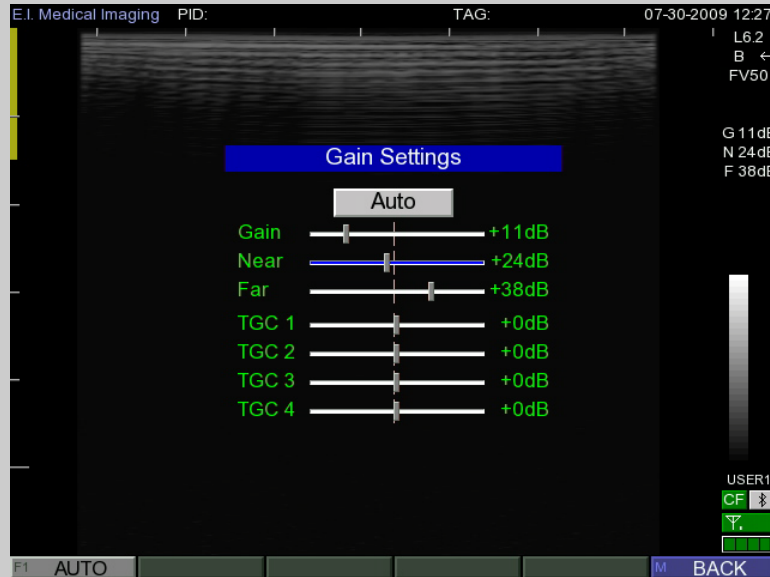
To adjust the overall gain, push the GAIN key. Use the left and right arrow keys to decrease/increase the brightness of the entire field.

The gold bar on the left side of the screen indicates the scanning depth on the target anatomy setting to take effect.

Table 6 GAIN Controls

GAIN Controls

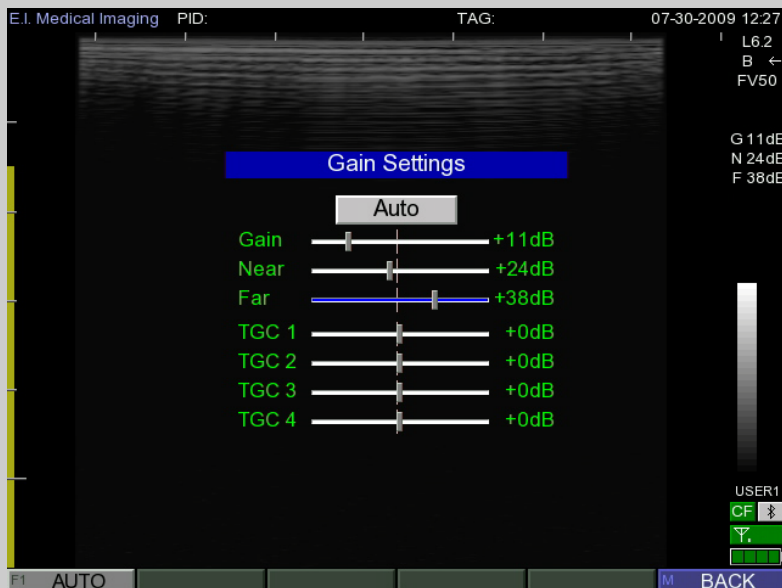
Near GAIN



The near GAIN control is used to lighten or darken the intensity of the echoes in the near field of the image (the area closest to the transducer). Use the same technique to adjust near GAIN as it is used for overall GAIN (mentioned above).

Note that the scan depth is effected.

Far GAIN

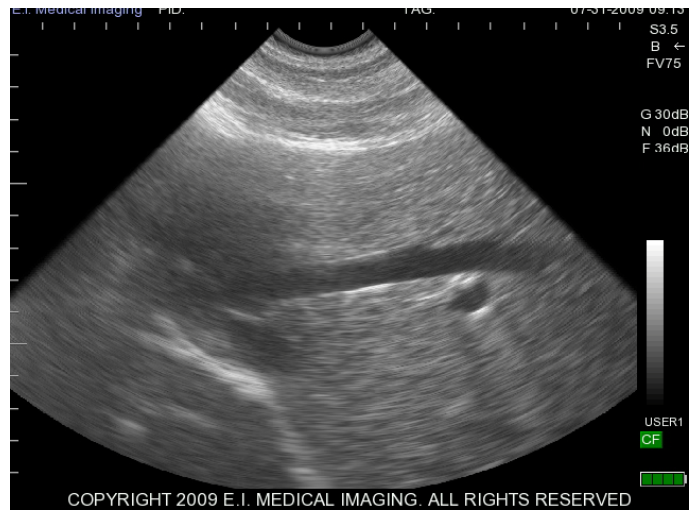


The far GAIN control is used to make adjustments to the electronic amplification of the echoes in the image area that are farthest away (far field) from the transducer. Again, use the same technique to adjust far GAIN as is mentioned in the overall gain section.

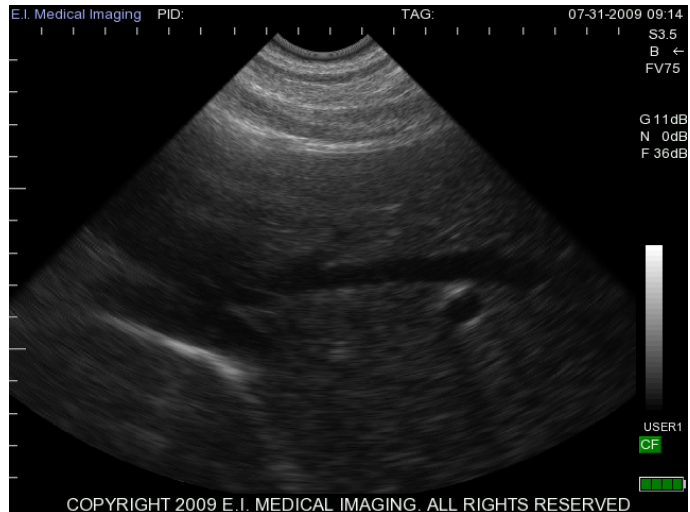
Note the scan depth effected.

The following images are examples of scans created using high, low, and optimal GAIN settings:

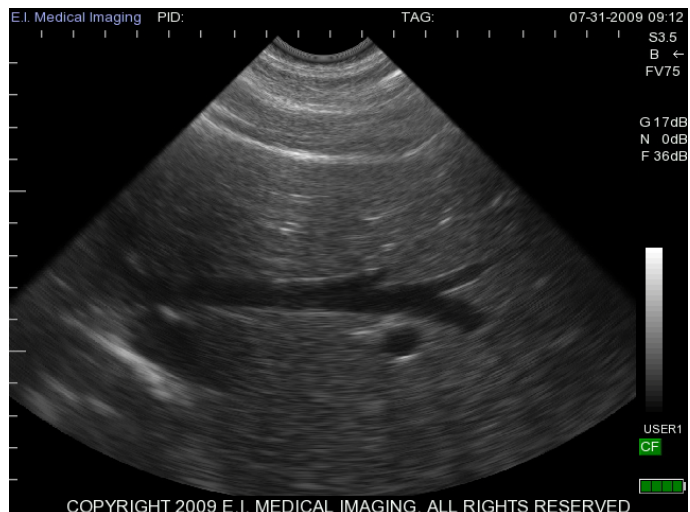
High GAIN Setting – Images will appear bright with detail lost.



Low GAIN Setting – Images will appear dark with no detail.



Optimal GAIN Setting – Images appear with uniform gray-scale and with optimal detail.



Using Auto GAIN

The auto gain feature allows the system to automatically adjust GAIN settings for optimal image quality. Auto GAIN calculates the optimal GAIN values based on tissue composition.

To use the Auto GAIN feature, highlight the **Auto** option in the GAIN Settings dialog, and then press **SELECT** to apply.

B+M Mode Scanning

M-MODE (Motion Mode) imaging is a scan that displays motion in a wave-like manner. This mode is especially useful in depicting motion in cardiac applications. By incorporating B Mode functionality with M-Mode strips, you can control the exact position of the desired scan location. Figure 11 is an example of B+M mode image.

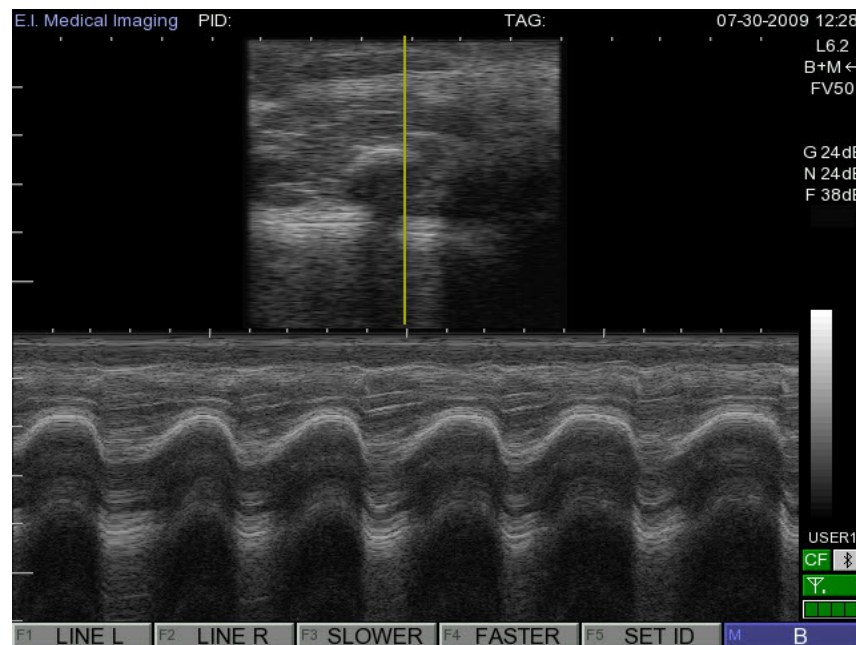


Figure 11 B+M Mode Scanning

Your B Mode image appears in the top center of the screen. The M-Mode strip appears in the lower half of the screen. You can position the M-Mode scan line using the vertical gold line displayed in the B-Mode image. Use the right/left arrows to set your line in the B-Mode image. Adjust the speed of the positioned line using the up/down arrows.

Ibex System Specifications

Table 7 lists the system specifications for the Ibex scanner family.

Table 7 Ibex™ Family System Specification

Specification	Description
Applications	Bovine, Equine, Companion Animal, Swine, Exotic and Small Ruminants
Modes of Operation	B Mode, B+M Mode
System Dimensions	Ibex Pro: IP54 - Grey Body; 8.9" L, 7" W, 3.2" D; 5.7 lb. (2.6 kg.) Ibex Lite: IP56 - Yellow Body; 8.9" L, 7" W, 2.2" D; 3.6 lb. (1.63 kg.)
Transducer (Type BF)	Support for 2.0 Mhz to 10 Mhz 128 Element Linear/Curved Linear probes Support for 3.5 MHz to 7.5 MHz Sector probes Support for user selectable scan directions
Connectivity	USB 2.0 image storage and recall; Wireless (802.11) connectivity and Bluetooth connectivity
Display	LCD 640 x 480 Display Matrix (VGA) on Ibex Pro InSite 2 Video Headset, 640 x 480 image display Monocular headset available 256 Greyscale
Power	Smart Li-ion battery; Stand alone external battery charger available; AC Power Adapter for charging or operating; Output: 15V DC 4A (60601-1)
Scan Measurements	Unlimited caliper sets for distance measurements Continuous arc of circumference Grid option for quick measurements Trackball for measurements Calculation tables On-screen text annotations and arrows Dual image feature for side-by-side comparisons
Image Storage	240 frame cineloop memory (30 frames/second frame rate recording) Compact Flash image storage and recall Audio Tags can be stored with image Static images can be saved from cine-loops Measure and recalculate from saved images

Table 7 Ibex™ Family System Specification

Specification	Description
Additional Features	System Dynamic Range 156 db 16 Channel Digital Beamformer Auto-Optimize image (Auto Gain and TGC) Zoom Multiple fields of view Software field upgradable All user settings may be saved and recalled Fiber-optic backlit keyboard DuraScan™ technology for system durability Ibex Pro sealed to IP54 for weather resistance Ibex Lite sealed to IP56 for weather resistance RFID Tag reader feature available
Operating Environment	Ibex: 0° to 40° C InSite2 Headset: 0° to 40° C
Storage and Transportation Environment	-20° to 50° C

Operating the Ibex Pro

The Ibex Pro offers a full alphanumeric keyboard and a liquid crystal display (LCD) for monitoring.

The Alphanumeric Keyboard Buttons

The Ibex Pro comes with a full Alpha-Numeric keyboard. The keyboard contains all the alpha and numeric keys needed for annotating images. These keys function the same as the keys on a computer keyboard. Figure 12 shows the layout of the alphanumeric keyboard.

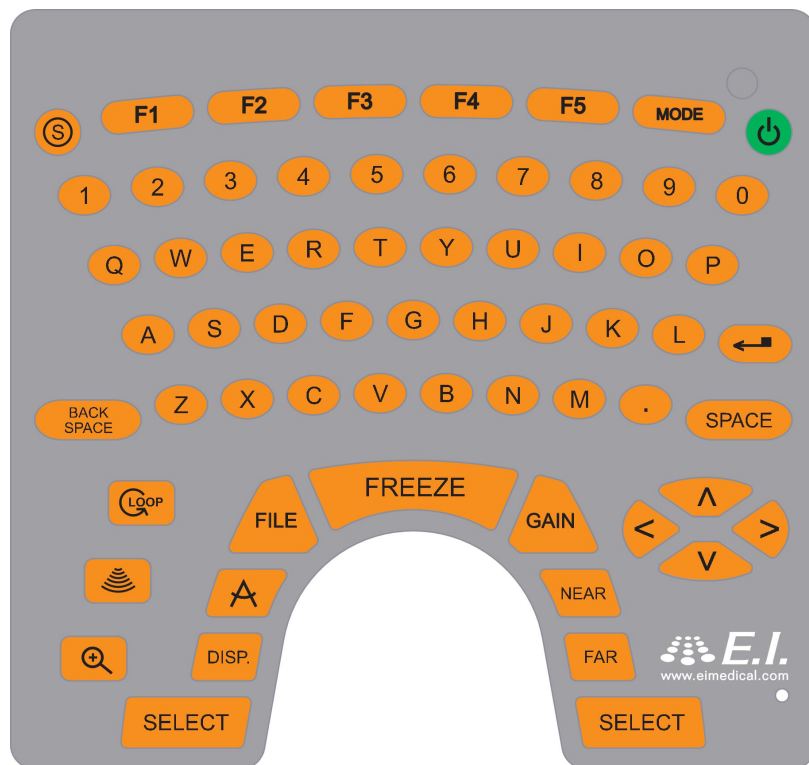


Figure 12 Ibex Pro Alphanumeric Keyboard

Table 8 describes the function of the keyboard buttons on the Pro and Lite.

Table 8 Keyboard Buttons




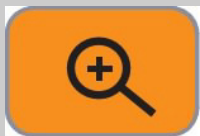
Button Designation	Description
	<p>SUPER – Pressing the super key returns the system to active scan mode (B or B+M).</p> <p>Pressing the super key returns you to the Startup Menu.</p> <p>Pressing the super key from B mode enters the super menu. You can access all the system option (F1), preset (F2), setup(F3), and help (F5) menus from the super menu.</p>
	<p>LOOP – The LOOP key replays up to eight seconds of ultrasound scans, or a total of 240 frames.</p> <p>To return to active scanning, press the LOOP key again.</p> <p>To pause replaying an ultrasound, press the FEEZE key. Pressing FREEZE again resumes active scanning.</p>
	<p>Field of View (FOV) – This key cycles the ultrasound through 25%, 50%, 75%, and 100% of the probe's maximum scan depth.</p> <p>Reducing the field of view displays greater detail for the visible area.</p>
	<p>ZOOM – The ZOOM key displays a yellow rectangle, which you can position using the trackball from an active scan, frozen image, or a recalled image.</p> <p>Pressing Select zooms the selected region to full screen.</p> <p>To exit zoom, press the ZOOM key again.</p>

Table 8 Keyboard Buttons


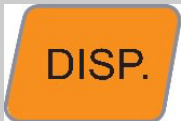

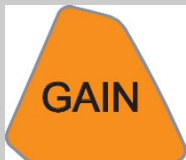





Button Designation	Description
	CALIPER – Pressing the CALIPER key automatically enters the measurement area menu during an active scan.
	<p>DISP. (display) – Pressing the DISPLAY key cycles the on-screen grid through the following three states:</p> <p>NONE – No grid lines display</p> <p>TICKS – Ruler style tick marks display along the top and left edges of the image area.</p> <p>FULL – A full grid displays allowing for visual area estimation without drawing a bounding region.</p>
	<p>FILE – Pressing the FILE key opens the File Menu screen.</p> <p>Using the trackball or arrow keys, selects a file to preview. Pressing Select allows you to recall or delete the selected image, or cancel and return to the file menu.</p>
	<p>GAIN – Pressing the GAIN key from an active scan opens the gain settings slider controls.</p> <p>Additional information on the GAIN key and manipulating images is covered later in the manual.</p> <p>In any text entry fields, pressing GAIN displays the on-screen keyboard. This allows access to both upper and lower case characters, along with numerals and special characters.</p>
	<p>NEAR – Pressing the NEAR key opens the gain setting controls with the near field slider activated.</p> <p>To increase/decrease the near field settings, use the left/right arrows.</p>

Table 8 Keyboard Buttons

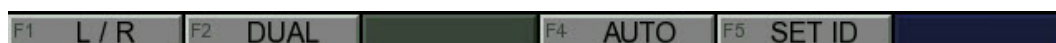
Button Designation	Description
	FAR – Pressing the FAR key opens the GAIN settings controls with the far field slider activated.
	SELECT – The SELECT key has generic functionality depending on menus and functions on the screen.
	FREEZE - Press the FREEZE key to freeze and unfreeze the active image on the screen.
	<p>MODE – Press the MODE key to toggle between B mode and B+M mode.</p> <p>Also, used as the sixth function key which corresponds to the action of the blue on-screen menu item.</p>

The On-Screen Menus

Use the on-screen menus to navigate and execute scanning operations and system functions. Figure 13 shows the main menu displayed at system start up.



Main (Startup) Menu with Linear Probes



Main (Startup) Menu with Sector Probes

Figure 13 Startup Menus

To access the super menu, Figure 14, press the SUPER key anytime from the startup menu. On the Pro with the monitor up, navigate the menus by pressing the corresponding F and Mode keys. This displays the different menus associated with the various scanning and system operations.



Figure 14 The Super Menu

Using the On-Board Help Pages

The on-board help pages are a guide to the functionality of the most common keyboard buttons.

To access the help pages, complete the following:

1. From the Super Menu, press the **F5** (HELP) key to display the help pages.
2. Use the **LEFT/RIGHT** arrow keys to change pages.
3. Press the **MODE** (BACK) key to exit the help pages.

Basic System Operations

This section covers how to:

- Set study identification
- Set the day and time
- Set user presets
- Adjust audio settings
- Adjust video settings
- Adjust scan options
- Set MISC options



Note – To perform basic system operation using the Pro with the LCD monitor closed, follow the instructions in the Lite chapter.

Setting Study Identification Information

To maintain a correlation between stored images and the patient, you should enter the Patient ID information.

To enter Patient ID and TAG information, complete the following:

1. Press **F5** from the Main menu to display the **Study Identification** dialog.
2. Enter the desired information.
Use the Alphanumeric keyboard or Press **GAIN** to display the on-screen keyboard.
3. Press **Select** to return to active scanning.
The PID and TAG information displays at the top of the screen.

Setting Day and Time

If for any reason your system loses its day and time information, reset it by completing the following:

1. Press **F3** from the Super menu to enter the **Setup** menu.
2. Press **F5** to enter the **System** menu.

3. Press **F1** to display the **Set Clock** dialog.
4. Use the arrow keys to enter the current day and time information.
5. Press **SUPER** key to save and return to active scanning.

User Presets

There are five user presets. This feature allows operators to set the scanner with individual preferences. You can also set suitable presets for different applications. User presets allow you to globally predefine the following system settings. The active user preset defines the following settings:

- GAIN and TGCs
- Video settings
- Audio settings
- Scan settings
- Misc settings
 - RFID settings
 - Quick Store settings

Selecting User Presets

To select user presets, complete the following:

1. Press **F2** from the Super menu to enter the **PRESET** menu.
2. Press **F** function key (**F1 - F5**) to select the desired preset.

Renaming User Presets

To rename user presets, complete the following:

1. Press **F3** from the Super menu to enter the **SETUP** menu.
2. Press **F1** to display the **PRESET SETUP** dialog.
3. Rename the User Presets using either the alphanumeric keyboard or press the **GAIN** key to display the on-screen keyboard.
4. Press the **SUPER** key to save and return to active scanning.

Changing the Default User Preset

To change the default user preset, complete the following:

1. Press **F3** from the Super menu to enter the **SETUP** menu.
2. Press **F1** to display the **PRESET SETUP** dialog.
3. Highlight the **Default** field using either the up/down arrow keys or the trackball.
4. Use the left/right arrow key or trackball to select a new default user.
5. Press the **SUPER** key to save and return to active scanning.

Adjusting Audio Settings

Adjust the audio settings to your particular needs by completing the following:

1. Press **F1** from the Super menu to enter the **Option** menu.
2. Press **F2** to display the **Audio Options** dialog.
3. Select the following User Preset defaults using the arrow keys or trackball:
 - Speaker volume
 - Headset volume
 - Set the Record Memo default to on.
 - Enable/Disable Key Clicking.
 - Enable/Disable System Sounds.
4. Press the **SUPER** key to save and return active scanning.

Adjusting Video Settings

Adjust the video settings to your particular needs by completing the following:

1. Press **F1** from the Super menu to enter the **Option** menu.
2. Press **F1** to display the **Video Options** dialog.
3. Select the following User Preset defaults using the arrow keys or trackball:
 - LCD Brightness
 - Classes Format, including:
 - NTSC
 - PAL

- Classes Color
4. Press **SUPER** to save and return to active scanning.

Adjusting Scan Options

To adjust scan settings, complete the following:

1. From the Super Menu, press the **F1** key (OPTION) to enter the **OPTION** menu.
2. Press the **F3** (SCAN) key to display the **Scan Options** dialog.
3. Select the following User Preset defaults using the arrow keys or trackball:
 - Persistence

Persistence is a frame averaging feature which allows the user to manipulate images based on application requirements. As a rule of thumb, persistence off provides a faster grainier image. Whereas, persistence slow smooths and slows down the image.
 - Save Loop Length

This setting allows you to set the maximum length of the stored loop in seconds.
 - Distance Units

This setting allows you to set the unit of measurement when using the calipers. Changing from centimeters to inches effects the tick marks and the grid scaling.
 - Temperature Units

This setting is only applicable when using a RFID device that includes temperature functionality.
 - Contrast

This setting effects the contrast of the active image.
 - Gamma

Used in conjunction with Contrast, Gamma helps adjust the grayscale intensities of the active image.
 - Enhance

This setting can help sharpen edge detection of the active image.
4. Press the **SUPER** key to save and return to active scanning.

Setting MISC Options

To adjust MISC settings, complete the following:

1. From the Super Menu, press the **F1** key (OPTION) to enter the **OPTION** menu.
2. Press the **F4** (MISC) key to display the **MISC Options** dialog.
3. Select the following MISC options using the arrow keys or trackball:

MISC options allows you to configure the following system defaults:

- **RFID**
Refer to “Enabling RFID” on page -57 for instructions.
- **Enable WiFi**
Refer to “Enabling WiFi (Wireless Fidelity)” on page -58 for instructions.
- **Enable Quick Store**
Enabling Quick Store allows you to quickly save images by skipping steps.
- **Set a Clinic Name**
Use the Alphanumeric keyboard or Press **GAIN** to display the on-screen keyboard.

Managing Images

This section covers how to:

- Freeze an image
- Save images and cineloops
- Recall images and cineloops
- Delete images



Note – To manage images when using the Pro with the LCD monitor closed, follow the instructions in the Lite chapter.

Freezing Images

The Ibex systems allows you to freeze any active image for further analysis. Pressing the **Freeze** key on either keyboard gives you the ability to:

- Take measurements of images and loops.
- Review images frame by frame using the left and right arrow keys or the trackball.
- Quickly access additional functionality using the following function keys:
 - Text
 - Caliper
 - Dual
 - Set ID

Probes with a freeze button give the added ability to:

- Freeze images without going to the scanner by pressing and releasing the button once.
- Store images without going to the scanner by holding the freeze button for two seconds from a frozen image.

Saving Images and Cineloops

At the time of image storage, the system captures and stores the following information in the meta-data of the file:

- The patient ID and TAG
- The timestamp
- The voice memo

The system saves images in the .JPG (Joint Photographic Group) file format (for example: MYIMAGE.JPG).

The system saves cineloops in the .AVI (Audio Video Interleave) file format (for example: MYLOOP.AVI).

The system assigns a default file name based on the following convention:

Table 9 Default File Name Convention

Year	Month	Day	Hour	Minutes	Seconds
4-digit	2-digit	2-digit	2-digit	2-digit	2-digit

For example: **20081116-094439.JPG**

Saving Images

To store images, complete the following:

1. Press the **File** key.
2. Highlight the **Store Image** option, and then press **Select** to display the **Save Image** dialog.
3. Enter a unique file name or accept the default.
Enable **Record Memo** to record a voice memo at this time.
4. Select **Save** to save the image and return to active scanning.

Saving Cineloops

To save cineloops, complete the following:

1. Press the **FILE** key.

2. Highlight the **Store Loop** option and press **Select** to display the **Save Cineloop** dialog.
3. Enter a unique file name or accept the default
Enable **Record Memo** to record a voice memo at this time.
4. Select **Save** to save the image and return to active scanning.

Recalling Images and Cineloops

You can recall stored images and cineloops for comparison studies.

Recalling Saved Images

To recall saved images, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight the .JPG file you want to recall from the list of files, and then you can either:
 - a. Press the **DISP.** key and listen to the associated voice memo, if one exists for the file. If one exists, the File Details area at the bottom of the screen displays *Memo Yes*;
 - b. Press **SELECT** to display the file action dialog.
3. Highlight the **RECALL** option and press **Select** to load and display the image.
4. Press either the **FILE** key again or the **MODE** key (BACK) to return to the file action dialog.
5. Select **CANCEL** to return to the **File Menu**.

Returning to the File Menu allows you to recall additional images for review.

6. When done, press the **MODE** (BACK) key to return to active scanning.

Recalling Cineloops

To recall stored cineloops, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight the .AVI file you want to recall from the list of files, and then you can either:

- a. Press the **DISP.** key and listen to the associated voice memo, if one exists for the file. If one exists, the File Details area at the bottom of the screen displays *Memo Yes*;
 - b. Press **SELECT** to display the file action dialog.
3. Highlight the **RECALL** option and press **Select** to load and display the image.
4. Press either the **FILE** key again or the **MODE** key (BACK) to return to the file action dialog.
5. Highlight the **CANCEL** option and press **Select** to return to the **File Menu**.
Returning to the File Menu allows you to recall additional cine loops for review.
6. When done, press the **MODE** (BACK) key to return to active scanning.

Deleting Images

To delete images and cine loops for the system, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight the file you want to delete from the list of files, and then press **SELECT** to display the file action dialog.
3. From the file action dialog, highlight the **Delete** option, and then press the **SELECT** key to display the **Confirm Delete** dialog.
4. Highlight the **YES** option, and then press the **SELECT** key to delete the file.
The File Menu displays. You can continue deleting files.
5. When done, press the **MODE** (BACK) key to return to active scanning.

Annotating and Measuring Images

Ibex systems allow you to make distance and area measurements, as well as annotate scanned images.

This section covers how to:

- Add text to images
- Add text to saved images
- Measure structures



Note – To annotate and measure images when using the Pro with the LCD monitor closed, follow the instructions in the Lite chapter.

Adding Text to Images

Follow the instructions below to add text labels to images.

1. Press the **FREEZE** key and freeze the image.
2. Press the **F1** (TEXT) key to display the on-screen cursor.
3. Position the cursor using the trackball.

If desired, press **F1** (ARROW) to anchor an arrow pointing to the anatomy of interest.

4. Enter the desired text using the alphanumeric keyboard.

The text is surrounded by a blue box.

Use the **BACK SPACE** key to erase characters.

Use the **RETURN** key to start a new line of text.

Use the up/down arrow keys to adjust the font size.

5. When done, press the **SELECT** key to save the text.

This turns the surrounding box from blue to black.

At this point you can either repeat steps 4 and 5 for additional entries or

6. Press the **MODE** (BACK) key to return to active scanning.

Adding Text to Saved Images

You can annotate and label saved images (.JPG) with alphanumeric text.

To add text to saved image files, complete the following:

1. Recall the saved image file by following the instructions in “Recalling Images and Cineloops” on page -49.
2. Press **F1** (TEXT) to add labels following the instructions in “Adding Text to Images” on page -51.

Ensure you save the label by pressing the **SELECT** key. This turns the surrounding box from blue to black.

3. Press **F3** (OPTION) to display the **Recall Menu**, and then highlight the **Save** option and press **SELECT** to display the **Save Image** dialog.
4. Enter a new file name or re-enter the existing file name, and then press the **SELECT** key.

If using the existing file name, the **Confirm Overwrite** dialog displays. Highlight the **YES** option to overwrite and save the file.

If you entered a new file name:

- a. Select the **SAVE** option, to return to the recalled image screen.
- b. Press the **MODE** (BACK) key to return to the file action dialog.
- c. Highlight the **CANCEL** option to display the **File Menu** dialog.
The new file does not appear in the file list until the next time you display the menu.
- d. Press the **MODE** key (BACK) to return to active scanning.

Measuring Images

The system allow you to auto calculate distance and area measurements.

Taking Distance Measurements

To take distance measurements, complete the following:

1. Press the **CALIPER** key to freeze the image, and then press the **F2** key (DIST) to display the first set of crosshairs on the screen.
2. Move the crosshairs to the desired start location, and then press the **SELECT** key to mark the origin.

The text box is blue.

Use the up/down arrow keys to adjust the font size.

To associate a distance table to the measurement, complete the following:

- a. Use the **F5** (TABLE) key to display the Distance Table dialog.
 - b. Highlight the desired table using either the trackball or arrow keys.
 - c. Press the **SELECT** key to associate the table.
3. Using the trackball, move the crosshairs in any direction to auto calculate the distance, and then press the **SELECT** key to end the measurement.

The text box turns black.

4. Continue taking measurements by pressing the **F2** (DIST) key and repeating steps 2 and 3 until you are done, and then press the **FREEZE** key to return to active scanning.

Or, to save this file with the measurements, complete the following:

- a. Press **FILE** to display the **File Menu** dialog.
- b. Highlight the **Store Image** option, and press **SELECT** to display the **Save Image** dialog.
- c. Press the **SELECT** key to save the file.

Taking Area Measurements

To take area measurements, complete the following:

1. Press the **CALIPER** key to freeze the image, and then press the **F3** key (AREA) to display the crosshairs on the screen.
2. Move the crosshairs to the far boundary of the measurement area, and then press the **SELECT** key to mark the origin.
3. Using the trackball, move the crosshairs in a circular direction and delineate the measurement area until you return to the starting position.
4. Press the **SELECT** key to end the measurement and display the size.

The text box turns black.

5. Continue taking measurements by pressing the **F3** (AREA) key and repeating steps 2 and 3 until you are done, and then press the **FREEZE** key to return to active scanning.

Or, to save this file with the measurement annotations:

- a. Press **FILE** to display the **File Menu** dialog.

- b. Highlight the **Store Image** option, and press **SELECT** to display the **Save Image** dialog.
- c. Highlight the **Save** option, and then press **SELECT** to save the file.

Advanced System Operations

This section covers how to:

- Work with dual images
- Stitch images
- Enable RFID (Radio Frequency Identification) or Bluetooth®
- Enable WiFi™ (Wireless Fidelity)
- Enable Quick Store

Working with Dual Images

The dual image feature of the Ibex Pro allows you to examine two side-by-side images at the same time. This feature is useful when:

- Comparing past scans with current scans
- Freezing an active scan and repositioning the probe to image the anatomy from a different angle.

To view dual images, complete the following:

1. Press the **FREEZE** key to freeze the image.
2. Press the **F3** key (DUAL) to display the frozen image on the right side of the screen. Active scanning continues on the left side of the screen.

The additional functionality while in Dual mode is as follows:

- **FULL L (F1)**
Loads the left image to full screen.
- **FULL R (F2)**
Loads the right image to full screen.
- **LOAD L (F3)**
Opens the File Menu dialog and loads the selected image on the left side of the screen.

Note – The left side is the only side that can have an active scan.

- **LOAD R (F4)**
Opens the File Menu dialog and loads the selected image on the right side of the screen.

- SET ID (F5)
Opens the Study Identification dialog.

Stitching Images

Image stitching allows you to join two images. Distance measurements can be taken across a complete stitched image. This feature is useful when measuring an anatomy that is wider than the probe.

Note – This feature is only available when using a Flat Linear Probe.



To stitch an image, complete the following:

1. Press the **F3** key (STITCH) to enter the STITCH feature.
Depending on the scan direction, the active image appears on either the right or left side of the screen.
2. Position the probe to view the first half of the anatomy, and then press the **F3** key (ACQUIRE) to freeze the image.

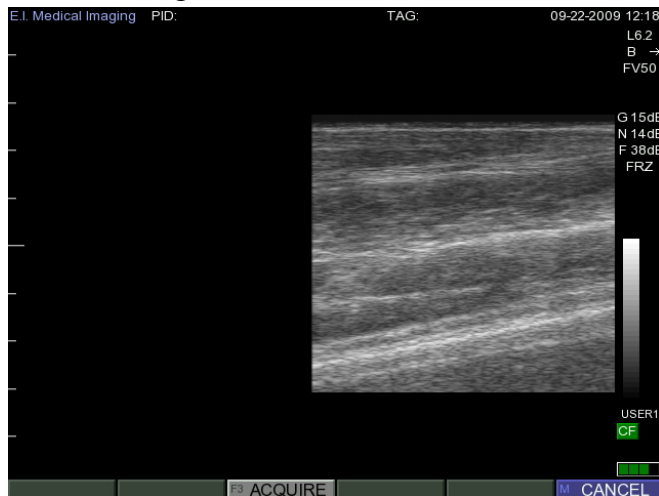


Figure 15 First Half of a Stitched Image

3. Realign the probe over the second half of the anatomy so that the boundary appears to be one continuous image, and then press the **F3** key (ACQUIRE) key to stitch the two images together.

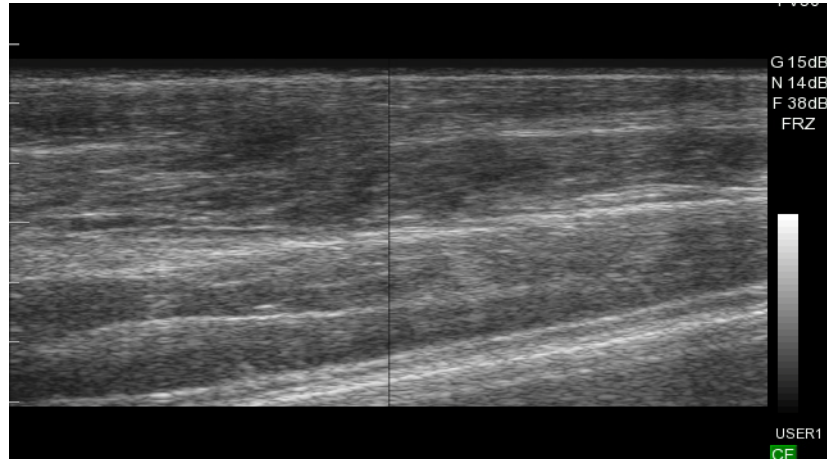


Figure 16 Two Images Stitched Together

Enabling RFID

The Ibex Pro uses Bluetooth wireless technology to communicate with compatible Bluetooth-enabled wands and RFID tags. Once connected to an RFID wand (tag reader), the scanned tag numbers appear in the PID field on the screen.

If the Save Image dialog is open, the scanned RFID tag number becomes the file name of the image.



Note – The system does not allow both RFID and WiFi to be enabled at the same time.

To enable RFID, complete the following:

1. From the Super Menu, press the **F1** key (OPTION) to enter the **OPTION** menu.
2. Press the **F4** (MISC) key to display the **Misc Options** dialog, and then highlight **ON** to enable RFID.
The Bluetooth screen icon displays.
3. Press the **MODE** key (BACK) to exit the Misc Option dialog and return to the Super Menu.
4. From the Super Menu, press the **F3** key, to enter the **Setup** menu.
5. Press the **F3** key (RFID) to display the **RFID Setup** dialog.

6. Power on the compatible Bluetooth enabled wand.
7. Highlight the **SCAN** option, and then press the **SELECT** key to search for the device.

The **Scanning...** dialog appears.

The device appears in the Scan Results list.

8. Highlight the device in the list, and then press **SELECT**, to connect to the device.

If multiple devices appear, use the left/right arrow keys to select.

The device appears in the RFID Device field once selected.

9. Highlight **EXIT** and press **SELECT** to return to scanning.

The Bluetooth icon turns blue when connected.

Enabling WiFi (Wireless Fidelity)

The Ibex Pro use WiFi (Wireless Fidelity) technology to communicate with wireless networks. When enabled, you can transfer saved images and loops to and from any computer on the same network.

Note – Leaving WiFi enabled uses more battery power and shortens battery run times.



To enable WiFi, complete the following:

1. From the Super Menu, press the **F1** key (OPTION) to enter the **OPTION** menu.
2. Press the **F4** (MISC) key to display the **Misc Options** dialog, and then highlight **ON** to enable WiFi.

Note – The system does not allow both RFID and WiFi to be enabled at the same time.



The WiFi screen icon displays and a connecting status bar appears.

3. Press the **MODE** key (BACK) to exit the **Misc Options** dialog and return to the Super Menu.
4. From the Super Menu, press the **F3** key, to enter the **Setup** menu.
5. Press the **F4** key (WiFi) to display the **WiFi Settings** dialog.

6. Enter the appropriate information for your private WiFi network, including:
 - a. Security Mode

Use the RIGHT/LEFT arrow keys to set the Security Mode to match your network settings. Valid options are:

 1. NONE
 2. WEP
 3. WEP-104
 4. WPA
 - b. SSID

The name of your wireless network
 - c. Key/PSK

The secret password for your wireless network.
 - d. Hide Key/PSK

Setting this option to NO, displays the Key/PSK password in clear text.
 - e. IP Mode

Select the method of obtaining IP addresses for your wireless network:

 1. STATIC

Using this option requires you to enter a valid IP Address and Subnet Mask for your network.
 2. DHCP
 - f. Hostname
 - g. Region Code



Caution – Must set region code for proper operation in your region

Use the left/right arrow keys to select the appropriate geographic region.

7. Highlight **ON** in the **File Sharing** option to enable file sharing with computers on the same network.
8. Highlight the **Password** button, and then press **SELECT** to display the **Network Password** dialog.

The network password secures the flash drive's contents from unwanted intrusion by users on the same network. The text color for the Current Password option is red. When you enter the correct password the text turns green. The system ships with the default password set to **eimed**.



Caution – For security, reset this password.

9. Highlight the **Apply** button, and then press **SELECT** to apply the WiFi settings.

The connecting status bar appears again, and the WiFi icon turns green with signal strength if connection is established.

10. Press the **MODE** key (BACK) to return to active scanning.

The Ibex system appears as a network disk drive on your computer. Refer to your computer's documentation on accessing a network disk drive.

Updating System Firmware

The system firmware contains all operating software for the system. E.I Medical Imaging recommends you keep your system updated to the latest version of the firmware to take advantage of new features and enhancements. Firmware file names have a .fw extension. For example: 01.04.00001.fw

Updating your system involves:

1. Identifying your current system version
2. Downloading the new version from www.eimedical.com
3. Installing the new version on your system.

Identifying System Firmware Version

To determine the version of firmware currently running on your system, complete the following:

1. From the Super menu, press the **F3** (SETUP) key.
2. Press the **F5** (SYSTEM) key.
3. Press the **F5** (INFO) key to display the **System Information** dialog.

The System Information dialog lists the following information:

- a. Serial # - The serial number of the system.
- b. FW Version - The current version of the firmware running the system.

- c. FPGA Version
 - d. Total Runtime - The total runtime in hours, minutes and seconds.
4. Press the **MODE** (BACK) key to return to active scanning.

Downloading New System Firmware

To obtain new firmware updates:

1. Go to the E.I. Medical Imaging Website at **www.eimedical.com**
2. Log in to your E.I. Medical Imaging user account and select the **User Downloads** link to enter the Secure Download Area.

You can register for an account on the Home Page.

3. Select the system type under the **Select Category** area to view the downloadable version for the system.
4. Select the **Firmware Version** link for your system type.
5. Click the **.fw** filename link to download the file.

Follow your computer system's instructions for saving the file.

6. Download the **Installation Instructions** (*Ibex_Firmware_Upgrade_Procedure.pdf*) file.

Installing Ibex System Firmware

To install the system firmware, complete the following:

1. Print the *Ibex Firmware Upgrade Procedures* document you downloaded from the Secure Download Area.
2. Follow the procedures in the document.

The *Ibex Firmware Upgrade Procedures* document maintains the most current and up-to-date instructions for installing the system firmware.

Operating the Ibex Lite

The Ibex Lite offers a simplified keyboard for menu navigation.

The Side Keyboard Buttons

The Ibex Lite comes with a side keyboard. Table 3 describes the function of the keyboard buttons on the side keyboard.

Table 3 Keyboard Buttons


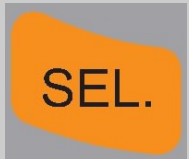

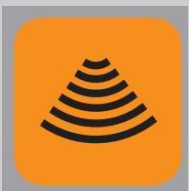

Button Designation	Description
	<p>FILE – Pressing the FILE key opens the File Menu screen.</p> <p>Using the up/down arrows, select a file to preview. Pressing Sel. allows you to recall or delete the selected image, or cancel to return to the file menu.</p>
	<p>SEL. – Pressing the SEL. activates the on-screen menus.</p>
	<p>FREEZE - Press the FREEZE key to freeze and unfreeze the active image on the screen. There are FRZ keys located on selected probes.</p>
	<p>Field of View (FOV) – This key cycles the ultrasound through 25%, 50%, 75%, and 100% of the probe's maximum scan depth.</p> <p>Reducing the field of view displays greater detail for the visible area.</p>

Table 3 Keyboard Buttons

Button Designation	Description
	<p>GAIN – Pressing the GAIN key from an active scan opens the gain settings slider controls.</p> <p>In any text entry fields, pressing GAIN displays the on-screen keyboard. This allows access to both upper and lower case characters, along with numerals and special characters.</p>

The On-screen Menus

Use the on-screen menus to navigate and execute scanning operations and system functions. This functionality is handled through the following primary menus:

- The Settings menu
- The System Settings menu
- The Config Settings menu

The Settings Menu is the top-level menu from which you navigate to the System Settings and Config Settings menus.

The Settings Menu

To access the **Settings** menu, press the **SEL.** key on the side keyboard, as shown in Figure 17.

Use the arrow keys to navigate through this menu. You can also access on-screen help pages to learn more about the side keyboard functionality and switch scanning modes.

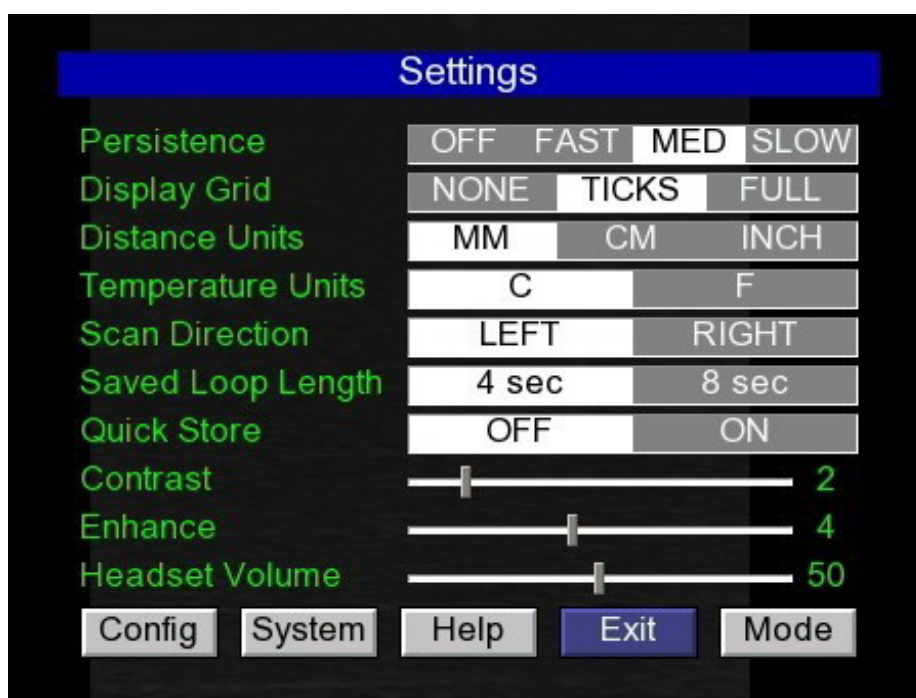


Figure 17 The Settings Menu

The Settings menu allows you to define the following system presets

- Persistence

Persistence is a frame averaging feature which allows the user to manipulate images based on application requirements. As a rule of thumb, persistence off provides a faster grainier image. Whereas, persistence slow smooths and slows down the image.
- Display Grid

This setting adjusts the display grids in the following manner:

 - NONE – No grid lines display
 - TICKS – Ruler style tick marks display along the top and left edges of the image area.
 - FULL – A full grid displays allowing for visual area estimation without drawing a bounding region.
- Distance Units

This setting allows you to set the unit of measurement. Changing from centimeters to inches effects the tick marks and the grid scaling.

- Temperature Units

This setting is only applicable when using a RFID device that includes temperature functionality.

- Scan Direction

This setting flips the orientation of the leading edge of the probe on the screen.

- Saved Loop Length

This setting allows you to set the maximum length of the stored loop in seconds.

- Quick Store

This setting when enabled allows you to quickly save images by skipping steps.

- Contrast

This setting effects the contrast of the active image.

- Enhance

This setting can help sharpen edge detection of the active image.

- Headset Volume

This setting adjusts the headset volume when listening to recorded memos.

The System Settings Menu

To access the **System Settings** menu:

1. Press the **SEL.** key to display the **Settings Settings** menu.
2. Using the arrow keys, highlight the **System** option, and then press **SEL.** to display the **System Settings** menu, as shown in Figure 18.



Figure 18 The System Settings Menu

This menu allows you to manage the following features:

- Clock
Use this option set the system date and time.
- RFID
Use this option to manage RFID settings.
- WiFi
Use this option to manage WiFi settings.
- Install
Use this option to perform firmware upgrade procedures.
- Reset
Use this option to reset the following:
 - The current user presets to factory settings
 - All settings to factory defaults

- Erase all saved images and loops
- Info
 - Use this option to obtain system identification information.

The Config Menu

To access the **Config Settings** menu:

1. Press the **SEL.** key to display the **Settings** menu.
2. Using the arrow keys, highlight the **Config** option, and then press **SEL.** to display the **Config Settings** menu, as shown in Figure 19.

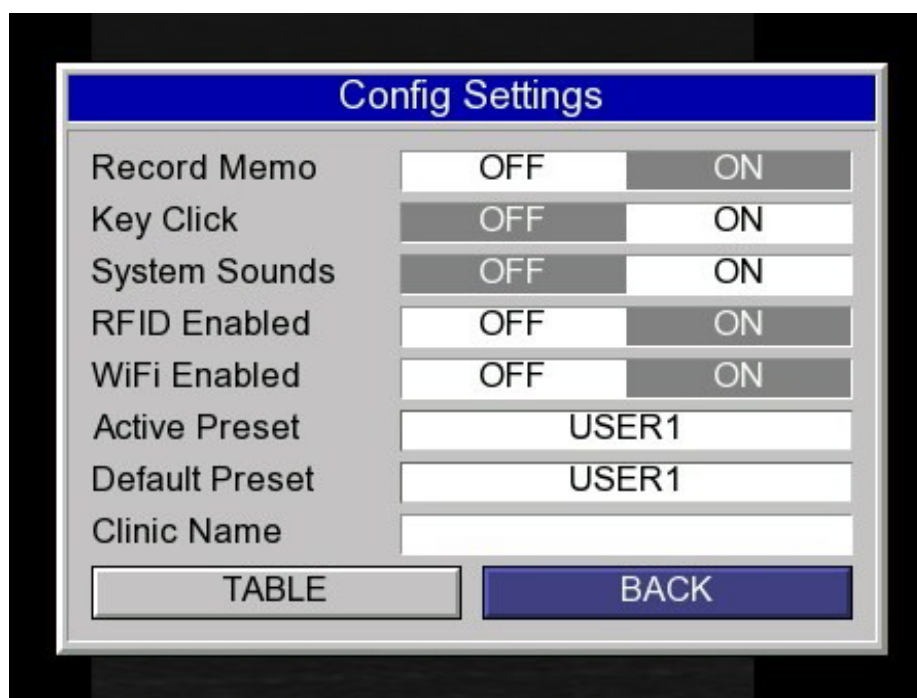


Figure 19 The Config Settings Menu

The Config menu allows you to enable and disable certain system features, as well as assign clinic names and a default user present. In addition, you can choose a user preset to activate.

The **TABLE** option allows you to select a default measurement table for distance measurements per User preset.

Using the On-Board Help Pages

The on-board help pages are a guide to the functionality of the most common keyboard buttons.

To access the help pages, complete the following:

1. Press the **SEL.** key to display the **Settings** menu.
2. Use the **LEFT/RIGHT** arrow keys to highlight the **Help** button, and then press **SEL.** to display the Help pages
3. Use the **LEFT/RIGHT** arrows to change pages.
4. Press the **SEL.** key to exit the help pages.
5. Highlight **Exit** and press **SEL.** to exit the **Settings** menu and return to active scanning.

Basic System Operations

This section covers how to:

- Set the day and time
- Set user presets
- Adjust headset volume
- Adjust video settings

Setting Day and Time

If for any reason your system loses its day and time information, reset it by completing the following:

1. Press **SEL.** key from active scanning to enter the **Settings** menu.
2. Using the arrow keys, highlight **System** and press the **SEL.** key to enter the **System Settings** menu.
3. Using the arrow keys, highlight **Clock** and press **SEL.** to display the **Set Clock** dialog.
4. Use the arrow keys to enter the current day and time information.
5. Press the **SEL.** key three times to save and return to active scanning.

User Presets

There are five user presets. This feature allows operators to set the scanner with individual preferences. You can also set suitable presets for different applications. User presets allow you to globally predefine the following system settings. The active user preset defines the following settings:

- GAIN and TGCs
- Video settings
- Audio settings
- Scan settings
- Misc settings
 - RFID settings
 - Quick Store settings

Selecting User Presets

To select user presets, complete the following:

1. Press **SEL.** from the side keyboard to enter the **Settings** menu.
2. Highlight the **Config** option and then press **SEL.** to enter the **Config Settings** menu.
3. Using the **UP/DOWN** arrow keys, highlight the **Active Preset** option, and then use the **LEFT/RIGHT** arrow keys to select the user preset.
4. Highlight the **BACK** option using the arrow keys, and then press **SEL.** twice to return to active scanning.

Changing the Default User Preset

To change the default user preset, complete the following:

1. Press **SEL.** from the side keyboard to enter the **Settings** menu.
2. Highlight the **Config** option and then press **SEL.** to enter the **Config Settings** menu.
3. Using the **UP/DOWN** arrow keys, highlight the **Default Preset** option, and then use the **LEFT/RIGHT** arrow keys to select the user preset.
4. Highlight the **BACK** option using the arrow keys, and then press **SEL.** twice to return to active scanning.

Adjusting Headset Volume

To adjust the headset volume, complete the following:

1. Press the **SEL.** key to display the **Settings** menu.
2. Highlight the **Headset Volume option** using the up/down arrow keys, and then use the right/left arrow keys to increase/decrease the volume.
3. Highlight the **Exit** option, and then press the **SEL.** key to return to active scanning.

Adjusting Video Settings

To adjust video settings, complete the following:

1. Press the **SEL.** key to enter the **Settings** menu.

2. Highlight **System** using the up/down arrow keys, and then use the right/left arrow keys to increase/decrease the **Contrast** and **Enhance** settings.



Note – When using the SmartVu headset, the video output must be NTSC grey-scale for the headset to work properly.

To change video output mode, press the **FOV** key while displaying the **Settings** dialog. This switches the output mode in the following order:

- NTSC color
- NTSC grey-scale
- PAL color
- PAL grey-scale

Managing Images

This section covers how to:

- Freeze an image
- Save images and loops
- Recalling images and loops
- Delete images

Freezing Images

The Ibex systems allows you to freeze any active image for further analysis. Pressing the **Freeze** key gives you the ability to:

- Take measurements of images and loops.
- Review images frame by frame using the left and right arrow keys.

Probes with a freeze button give the added ability to:

- Freeze images without going to the scanner by pressing and releasing the button once.
- Store images without going to the scanner by holding the freeze button for two seconds from a frozen image.

Saving Images and Cineloops

At the time of image storage, the system captures and stores the following information in the meta-data of the file:

- The patient ID and TAG
- The timestamp
- The voice memo

The system saves images in the .JPG (Joint Photographic Group) file format (for example: MYIMAGE.JPG).

The system saves cine loops in the .AVI (Audio Video Interleave) file format (for example: MYLOOP.AVI).

The system assigns a default file name based on the following convention:

Table 4 Default File Name Convention

Year	Month	Day	Hour	Minutes	Seconds
4-digit	2-digit	2-digit	2-digit	2-digit	2-digit

For example: **20081116-094439.JPG**

Saving Images

To save images, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight **Store Image** option using the up/down arrows and press **SEL.** to display the **Save Image** dialog.
3. Either accept the default name or press the **GAIN** key to display the on-screen keyboard and enter a new file name.

If desired, you can highlight the **RECORD** option to record a voice memo for the file.

4. Highlight the **Save** option to store the image and return to active scanning.

The Ibex Lite saves images in the .JPG (Joint Photographic Group) file format. (for example: MYIMAGE.JPG).

Saving Cineloops

To save cineloops, complete the following:

1. Press the **FILE** key to display the **File Menu** dialog.
2. Highlight the **Store Loop** option using the up/down arrow keys and press **SEL.** to display the **Save Cineloop** dialog.
3. Either accept the default name or press the **GAIN** key to display the on-screen keyboard and enter a new file name.

If desired, you can highlight the **RECORD** option to record a voice memo for the file.

4. Highlight the **Save** option to store the loop and return to active scanning.

The Ibex Lite saves individual loops in the .AVI (Audio Video Interleave) file format. (For example: MYLOOP.AVI).

Recalling Images and Cineloops

You can recall stored images and cineloops for comparison studies.

Recalling Saved Images

To recall saved images, complete the following:

To recall saved images, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight the .JPG file you want to recall from the list of files, and then press **SEL.** to display the file action dialog.
3. Highlight the **RECALL** option and press **SEL.** to load and display the image.
4. Press the **FILE** key again to return to the file action dialog.
5. Highlight the **CANCEL** option and press **SEL.** to return to the **File Menu**.

Returning to the File Menu allows you to recall additional images for review.

6. When done, press the **FILE** key to return to active scanning.

Recalling Cineloops

To recall stored cineloops, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight the .AVI file you want to recall from the list of files, and then press **SEL.** to display the file action dialog.
3. Highlight the **RECALL** option and press **SEL.** to load and display the image.
4. Press the **FILE** key again to return to the file action dialog.
5. Highlight the **CANCEL** option and press **SEL.** to return to the **File Menu**.

Returning to the File Menu allows you to recall additional loops for review.

6. When done, press the **FILE** key to return to active scanning.

Deleting Images

To delete images and cineloops for the system, complete the following:

1. Press the **FILE** key to display the **File Menu**.
2. Highlight the file you want to delete from the list of files, and then press **SEL.** to display the file action dialog.
3. From the file action dialog, highlight the **Delete** option, and then press the **SEL.** key to display the **Confirm Delete** dialog.
4. Highlight the **YES** option, and then press the **SEL.** key to delete the file.
The File Menu displays. You can continue deleting files.
5. When done, press the **FILE** key to return to active scanning.

Measuring Images

To take distance measurements, complete the following:

1. Press the **FREEZE** key to freeze the image, and then press the **SEL.** key to display the **Freeze** dialog.
2. Highlight the **Measure** option using the UP/DOWN arrow keys, and then press **SEL.** to display the first set of crosshairs on the screen.
3. Move the crosshairs to the desired start location using the arrow keys, and then press the **SEL.** key to mark the origin.

The text box is blue.

4. Using arrow keys, move the crosshairs in any direction to auto calculate the distance, and then press **SEL.** to end the measurement.

The text box turns black.

Note – If a measurement table has been selected, the calculation is automatically applied to the measurement.

5. Continue measuring by pressing the **SEL.** key and repeating steps 3 and 4 until your done, and then press the **FREEZE** key to return to active scanning.

Or, to save this file with the measurement annotations, do:

- a. Press the **FILE** key to display the **Store Menu** dialog.
 - b. Highlight the **Store Image** option, and press **SEL.** to display the **Save Image** dialog.
 - c. Highlight the **SAVE** option, and then press the **SEL.** key to save the file.
6. Press the **FREEZE** key to return to active scanning.

Advanced System Operations

This section covers how to:

- Enable RFID (Radio Frequency Identification) or Bluetooth®
- Enable WiFi™ (Wireless Fidelity)
- Enable Quick Store

Enabling RFID

The Ibex Lite uses Bluetooth wireless technology to communicate with compatible Bluetooth-enabled wands and RFID tags. Once connected to an RFID wand (tag reader), the scanned tag numbers appear in the PID field on the screen.

If the Save Image dialog is open, the scanned RFID tag number becomes the file name of the image.



Note – The system does not allow both RFID and WiFi to be enabled at the same time.

To enable RFID, complete the following:

1. Press the **SEL.** key to display the **Settings** dialog.
2. Highlight the **Config** option to display the **Config Settings** menu.
3. Highlight the **ON** option to enable RFID.
The Bluetooth screen icon displays.
4. Highlight **BACK** option and then press the **SEL.** key to display the **Settings** menu.
5. Highlight the **System** option, and then press the **SEL.** to display the **System Settings** dialog.
6. Highlight the **RFID** option, and then press the **SEL.** to display the **RFID Setup** dialog.
7. Power on the compatible Bluetooth enabled wand.
8. Highlight the **SCAN** option, and then press the **SEL.** key to search for the device.

The **Scanning...** dialog appears.

The device appears in the Scan Results list.

9. Highlight the device in the list, and then press the **SEL.** key to connect to the device.
If multiple devices appear, use the left/right arrow keys to select.
The device appears in the RFID Device field once selected.
10. Highlight **EXIT** and press **SEL.** to return to the **System Settings** menu.
The Bluetooth icon turns blue when connected.
11. Press the **SEL.** key twice to return to active scanning.

Enabling WiFi (Wireless Fidelity)

The Ibex Lite use WiFi (Wireless Fidelity) technology to communicate with wireless networks. When enabled, you can transfer saved images and loops to and from any computer on the same network.



Note – Leaving WiFi enabled uses more battery power and shortens battery run times.

1. Press the **SEL.** key to display the **Settings** menu.
2. Highlight the **Config** option and press the **SEL.** key to display the **Config Settings** menu.
3. Highlight the **ON** option to enable WiFi, and then highlight the **BACK** option and press the **SEL.** key to return to the **Settings** menu.

The WiFi screen icon displays and a connecting status bar appears.



Note – The system does not allow both RFID and WiFi to be enabled at the same time.

4. Highlight the **System** option, and then press the **SEL.** to display the **System Settings** menu.
5. Highlight the **WiFi** option, and then press the **SEL.** to display the **WiFi Settings** menu.
6. Enter the appropriate information for your private WiFi network, including:
 - a. Security Mode
Use the RIGHT/LEFT arrow keys to set the Security Mode to match your network settings. Valid options are:
 1. NONE

2. WEP
3. WEP-104
4. WPA
- b. SSID
The name of your wireless network
- c. Key/PSK
The secret password for your wireless network.
- d. Hide Key/PSK
Setting this option to NO, displays the Key/PSK password in clear text.
- e. IP Mode
Select the method of obtaining IP addresses for your wireless network:
 1. STATIC
Using this option requires you to enter a valid IP Address and Subnet Mask for your network.
 2. DHCP
- f. Hostname
- g. Region Code



Caution – Must set region code for proper operation in your region

- h. Use the left/right arrow keys to select the appropriate geographic region.
7. Highlight the **File Sharing** option to enable file sharing with computers on the same network.
8. Highlight the **Password** option, and then press **SEL.** to display the **Network Password** dialog.
The network password secures the flash drive's contents from unwanted intrusion by users on the same network. The text color for the Current Password option is red. When you enter the correct password the text turns green. The system ships with the default password set to **eimed**.



Caution – You should reset this password for security reasons.

9. Highlight the **Apply** option, and then press **SEL.** to apply the WiFi settings.
The connecting status bar appears again, and the WiFi icon turns green with signal strength if connection is established.

10. Highlight the **Exit** option, and then press the **SEL.** key to return to the **System Settings** menu.
11. Press the **SEL.** key twice to return to active scanning.

Updating System Firmware

The system firmware contains all operating software for the system. E.I Medical Imaging recommends you keep your system updated to the latest version of the firmware to take advantage of new features and enhancements. Firmware file names have a .fw extension. For example: 01.04.00001.fw

Updating your system involves:

1. Identifying your current system version
2. Downloading the new version from www.eimedical.com
3. Installing the new version on your system.

Identifying System Firmware Version

To determine the version of firmware currently running on your system, complete the following:

1. Press the **SEL.** key to display the **Settings** menu.
2. Highlight the System option, and then press the **SEL.** key to display the **System Settings** menu.
3. Highlight the Info option, and then press the **SEL.** key to display the **System Information** dialog.

The System Information dialog lists the following information:

- a. Serial # - The serial number of the system.
 - b. FW Version - The current version of the firmware running the system.
 - c. FPGA Version
 - d. Total Runtime - The total runtime in hours, minutes and seconds.
4. Press the **SEL.** key three times to return to active scanning.

Downloading New System Firmware

The obtain new firmware updates:

1. Go to the E.I. Medical Imaging We site at www.eimedical.com

2. Log in to your E.I. Medical Imaging user account and select the **User Downloads** link to enter the Secure Download Area.

You can register for an account on the Home Page.

3. Select the system type under the **Select Category** area to view the downloadable version for the system.
4. Select the **Firmware Version** link for your system type.
5. Click the **.fw** filename link to download the file.
Follow your computer system's instructions for saving the file.
6. Download the **Installation Instructions**
(`Ibex_Firmware_Upgrade_Procedure.pdf`) file.

Installing Ibex System Firmware

To install the system firmware, complete the following:

1. Print the *Ibex Firmware Upgrade Procedures* document you downloaded from the Secure Download Area.
2. Following the procedures in the document.

The *Ibex Firmware Upgrade Procedures* document maintains the most current and up-to-date instructions for installing the system firmware.

Cleaning and Maintaining the Scanner

Make sure you clean your Ibex ultrasound system and associated transducers after every use. Routine cleaning and maintenance will help ensure the prolonged life of your system. While the Ibex ultrasound is a ruggedized ultrasound device, certain precautions should be used in the care of the system. Do not use any abrasive cleaners on either your Ibex ultrasound system or associated transducers

Ibex System Care and Maintenance

To clean either the Ibex Pro or Lite, ensure the following cautions and directives are followed.

Ibex Pro Care and Maintenance



Caution – Connect the probe to ensure the most water resistant seal for the connector.

- Close and LOCK the door before cleaning.
- To clean the LCD panel, use a soft cloth with an ammonia based (common window cleaner) cleaning agent.
- For disinfecting the system, Sporidicin ® is recommended
- Allow the system to air dry or wipe down with a clean, dry towel
- To clean the trackball first flush with water at low pressure prior to wiping the trackball cavity, then use isopropyl alcohol to clean.

Ibex Lite Care and Maintenance

To clean, ensure the following:



Caution – Connect the probe to ensure the most water resistant seal for the connector.

- Connect the probe to ensure the most water resistant seal for the connector.
- Close and LOCK the door before cleaning.
- Ibex Lite can be gently washed down with a hose and cloth

- For disinfecting the system, Sporidicin ® is recommended
- Allow the system to air dry or wipe down with a clean, dry towel

InSite2 Headset Care and Maintenance

To clean, ensure the following:

- Using a gentle shower, rinse your InSite2 headset to remove large amounts of debris
- Use a damp cloth to wipe down any excess debris from the headset
- Allow the headset to air dry or wipe down with a clean, dry towel

Linear Transducer Care and Maintenance

To clean, ensure the following:

- Submerge only the transducer end in water and clean with a dry towel.
- Do not use any coarse cleaning tools (wire brush, scrub brush, etc.) on the face of the transducer (light gray area)



Caution – Ensure probe connectors are dry and free of debris before connecting to the Ibex system.

- DO NOT use mineral oil on any Ibex transducers.
- To disinfect the Linear probe, use a Sporidicin® sterilant.

Sector Transducer Care and Maintenance

To clean, ensure the following:

- Submerge only the transducer end in water and clean with a dry towel.
- Do not use any coarse cleaning tools (wire brush, scrub brush, etc.) on the face of the transducer (light gray area)
- The probe connectors are dry and free of debris before connecting to the Ibex system.
- DO NOT use mineral oil on any Ibex transducers.

- If you notice a crack in the white crystal dome of the transducer, STOP SCANNING IMMEDIATELY, and return the probe to E.I. Medical Imaging for repair.
- To disinfect the Sector probe, use a Sporidicin® sterilant.

Thermoform Carrying Case Care and Maintenance

To clean, ensure the following:

- Hand wash using cold water and a mild detergent.
- DO NOT MACHINE WASH.
- Hang and air dry until fully dry.

Soft Waist Pouch Care and Maintenance

To clean, ensure the following:

- Hand wash using cold water and a mild detergent.
- DO NOT MACHINE WASH THE POUCH.
- Hang and air dry until fully dry.
- Do Not put the pouch in a dryer.

Warranty

THREE YEAR LIMITED WARRANTY

Limited Warranty This Limited Warranty is provided only to you as the original retail purchaser of the shipped E.I. Medical Imaging IBEX Diagnostic Ultrasound Scanner (the Product), and to no other person. E.I. Medical Imaging warrants to you that for a period of three (3) years with respect to labor and for a period of three (3) years with respect to parts, the Product will be free from defects in materials and/or workmanship.

The InSite™2 and i3Video Headsets are covered under this limited warranty for a period of three (3) years from date of purchase, provided the InSite™2 and i3 Video Headsets are used in accordance with the safety instructions outlined in the User Manual and has not been abused or misused in any way as determined by the technical staff upon inspection of the InSite™2 / i3Video Headset. The final determination of coverage under this limited warranty will be made at the E.I. Medical Imaging manufacturing facility.

TWO YEAR LIMITED WARRANTY

Limited Warranty Transducers carry a two (2) year limited warranty from the date of purchase. E.I. Medical Imaging warrants to you that for a period of two (2) years with respect to labor and for a period of two (2) years with respect to parts, the Product will be free from defects in materials and/or workmanship.

ONE YEAR LIMITED WARRANTY

Limited Warranty Batteries, and other Ibex associated accessories carry a one (1) year limited warranty from the date of purchase. E.I. Medical Imaging warrants to you that for a period of one (1) year with respect to labor and for a period of one (1) year with respect to parts, the Product will be free from defects in materials and/or workmanship.

LIMITED WARRANTY

Disclaimer of All Other Warranties Except as specifically provided above, there are no express warranties or claims or representations made by E.I. Medical Imaging regarding the Product. Any implied warranties, including implied warranties against claims that the product infringes on property rights of third parties, patent rights, implied warranties of fitness for a particular purpose or use, and implied warranties of merchantability, shall terminate one (1) year from the date of purchase.

Your Exclusive Remedy E.I. Medical Imaging's entire liability and your exclusive remedy under this Limited Warranty shall be, at E.I. Medical Imaging's option, either repair or replacement of the Product within the specified warranty period. IN NO EVENT DOES THIS WARRANTY COVER DEFECTS OR MALFUNCTIONS DUE DIRECTLY OR INDIRECTLY TO ACCIDENT, MISUSE, OR NEGLIGENCE OF THE PRODUCT, TAMPERING WITH OR ANY INDICATION THAT THE SYSTEM HAS BEEN OPENED BY ANY NON-E.I. MEDICAL IMAGING APPROVED INDIVIDUAL OR SERVICE CENTER, OR AN ACT OF GOD.

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Repair Warranty Any repair work preformed by E.I. Medical Imaging shall be warranted with respect to parts and labor to be free from defect for a period of (30) thirty days.

Obtaining Warranty Service All Warranty repair work shall be performed by E.I. Medical Imaging's employees at the factory or by an Authorized Service Center. In the event that the Product requires service, please contact E.I. Medical Imaging, or other authorized service provider, to obtain a Return Materials Authorization (RMA) number. This number must accompany your Product upon return in order to obtain service on your unit. **YOU THE PURCHASER ARE RESPONSIBLE FOR ALL FREIGHT CHARGES ASSOCIATED WITH WARRANTY SERVICE.**

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