

E.I. MEDICAL IMAGING

VETERINARY ULTRASOUND SOLUTIONS



IBEX LITENXT Ultrasound System Fast-Track User Reference Guide

IBEX LITENXT manual can be downloaded at: <https://www.eimedical.com/library>

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FCC Regulatory Information



Contains FCC ID: Z64-WL18DBMOD

Contains IC: 451I-WL18DBMOD

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.

CE Declaration of Conformity

Pending

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Overview

Please read all the instructions and warnings before using the IBEX LITENXT Portable Ultrasound system.

The **IBEX LITENXT Portable Ultrasound User Guide** provides an overview of the features and functionality of the LITENXT ultrasound system. This guide offers the information you need to quickly set up, operate, and maintain the LITENXT.

The **E.I. Medical Imaging IBEX family** of ultrasound scanners are internally battery-powered devices designed for veterinary use. 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 who are already familiar with ultrasound techniques.

The **IBEX LITENXT ultrasound system** represents the 7th generation of portable, highly ruggedized ultrasound systems from E.I. Medical Imaging. The LITENXT is the result of years of customer feedback and the hard work of our R&D team in Loveland, Colorado.

This **IBEX LITENXT User Manual** is a short reference guide for the basic use and care of your IBEX LITENXT ultrasound system.



It is recommended that the user read all instructions and warnings before using this ultrasound device.

Charging the Battery Pack

1. Ensure that the battery is installed in the IBEX LITENXT system. Engage the battery door latch to the upright lock position to ensure the system access door is properly sealed.
2. Connect the AC adapter to the IBEX LITENXT system with the AC adapter connector inside the battery door.
3. Plug the adapter into a 110-240 VAC Outlet.
During the charge cycle the orange battery light on the keypad 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.

Transducer

The IBEX LITENXT ultrasound supports the attached eCLi6 hybrid transducer. The eCLi6 transducer is hardwired to the IBEX LITENXT for increased ruggedness and durability.

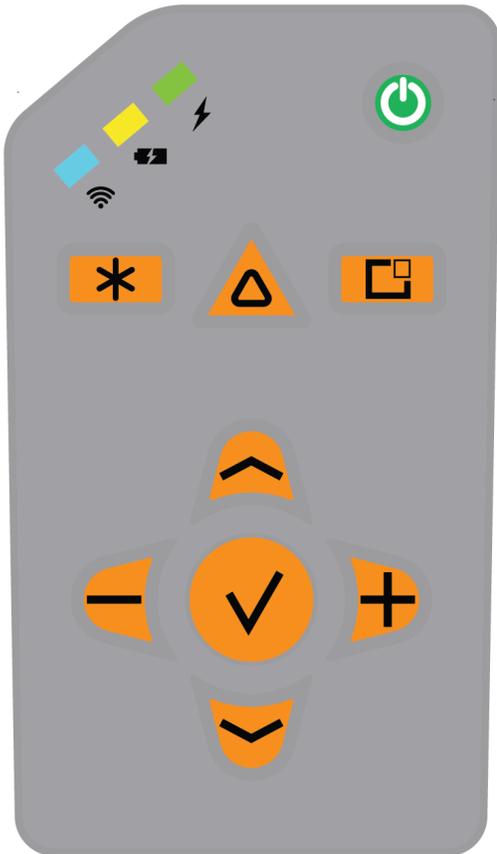
Video Headset

The InSiteNXT video headset can be ordered as an accessory to work with the LITENXT ultrasound system. Additional models are available. Ask your E.I. Medical Imaging sales representative for more information.

The LITENXT uses standard DisplayPort over USB-C for connection to the video headset, the connector can be inserted in 2 directions, either will work. It is then secured by screwing the ring on the headset cable to the threaded body of the LITENXT headset connector.

IBEX LITENXT Keyboard

The multifunction keyboard on the LITENXT can be configured to perform different functions.



The basic keys used to operate the LITENXT system are as follows:

Keys and Functions



Power Button- used to power on/off the LITENXT system.



WiFi Indicator- will light **BLUE** when connected to WiFi network

Blinking:

- Slow: setting up the access point in DIRECT mode or connecting to a network in STATION mode.
- Fast: setting up the 5GHz access point, performing DFS scan.
- Fast-Fast-Slow: setting up the access point using a user selected channel

Error codes:

- Slow-slow-fast-fast; Unsupported display connected
- 4-times fast: Display Port link training has failed



Charge Indicator- will light **ORANGE** when charging, no light when fully charged or if no battery detected



Power Indicator- Will light **Green** when power is ON



POWER- Turns the system on/off.



FREEZE- The FREEZE button performs different functions based on mode:

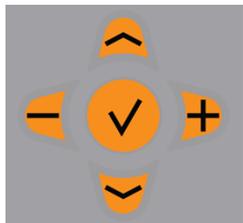
Normal mode (Full screen): Press the FREEZE key to freeze and unfreeze the active image on the screen. Menu mode: Back/ cancel



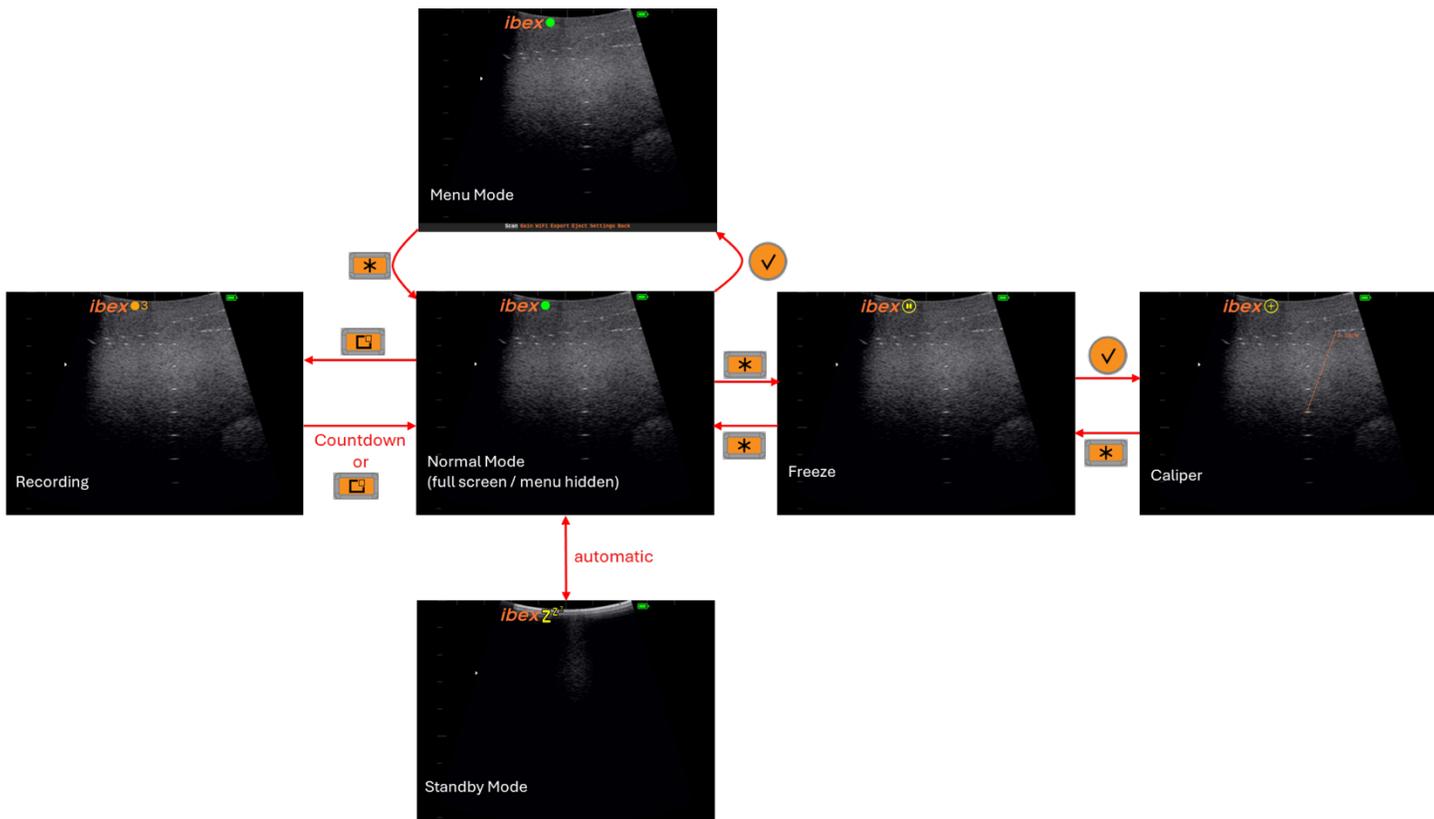
Triangle- The Triangle/Action key is not configured by default.



SAVE - Either takes a still image or start/stops a recording. This function can be changed in the Settings → Miscellaneous menu.



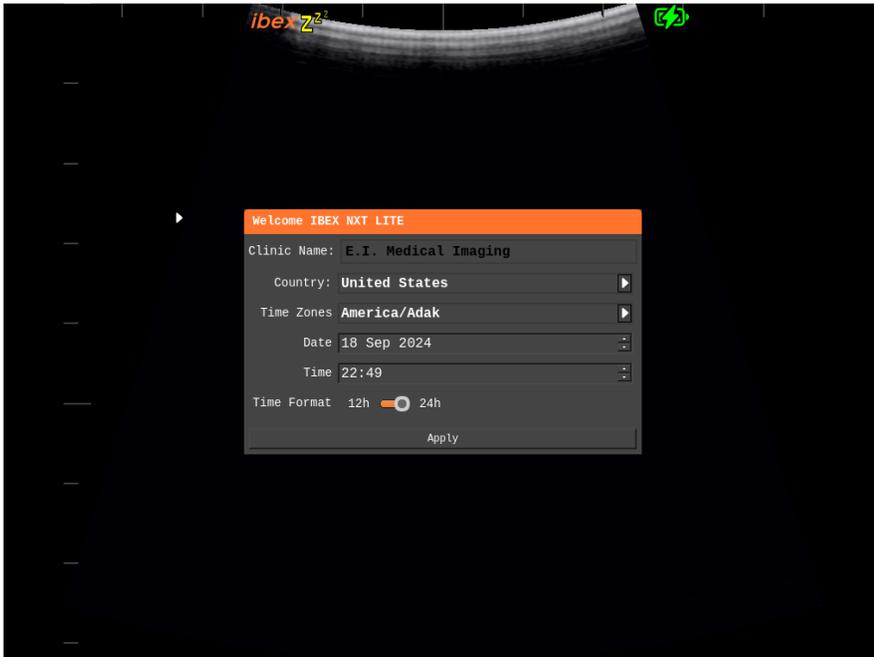
Navigation Cluster—These keys are used to activate controls used in various functions. The Center Checkmark button is the SELECT key. The SELECT key has generic functionality depending on menus and functions on the screen. During normal mode, the left/right keys are used to decrease/increase the overall gain. Up/Down will change the exam type.



Basic System Operation

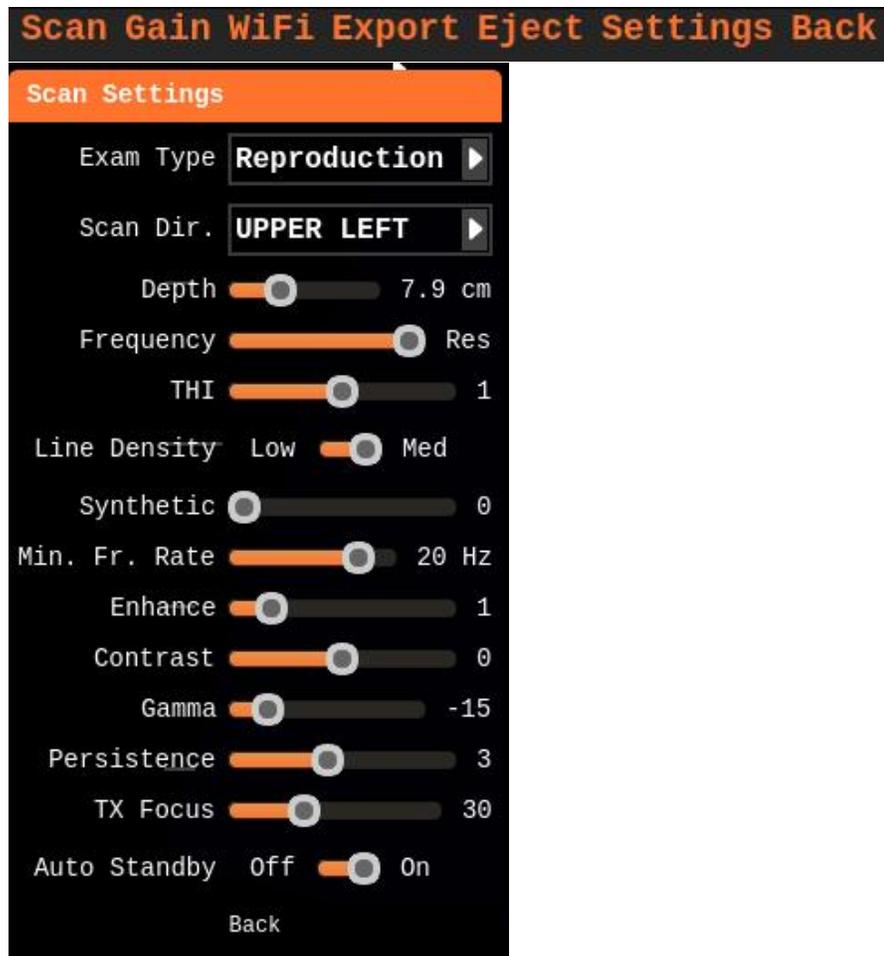
Welcome Screen

When you power on your LITENXT system for the first time, you will find the Welcome Screen. On this screen you will be able to set your Clinic Name, Country of use, Time Zone, Date, Time and preferred time format.



Use the directional arrows and Select key to input your selections.

Main Menu



Scan-

The Scan Settings menu provides access to advanced system controls.

There are various system presets with optimal settings for a specific exam type. For example, Reproduction. Some exam types incorporate Extended View for best performance.

Scan Settings Control Menu:

- Exam Type-
This feature allows for a series of preset scanning configurations depending on the use case. The three preset Exam Types are:
 - Reproduction
 - Fetal Sexing
 - Arms Free
- Scan Direction-
Allows the user to select the direction in which the system is scanning. The IBEX logo *ibex* indicates the scan direction i.e. front edge of the transducer.

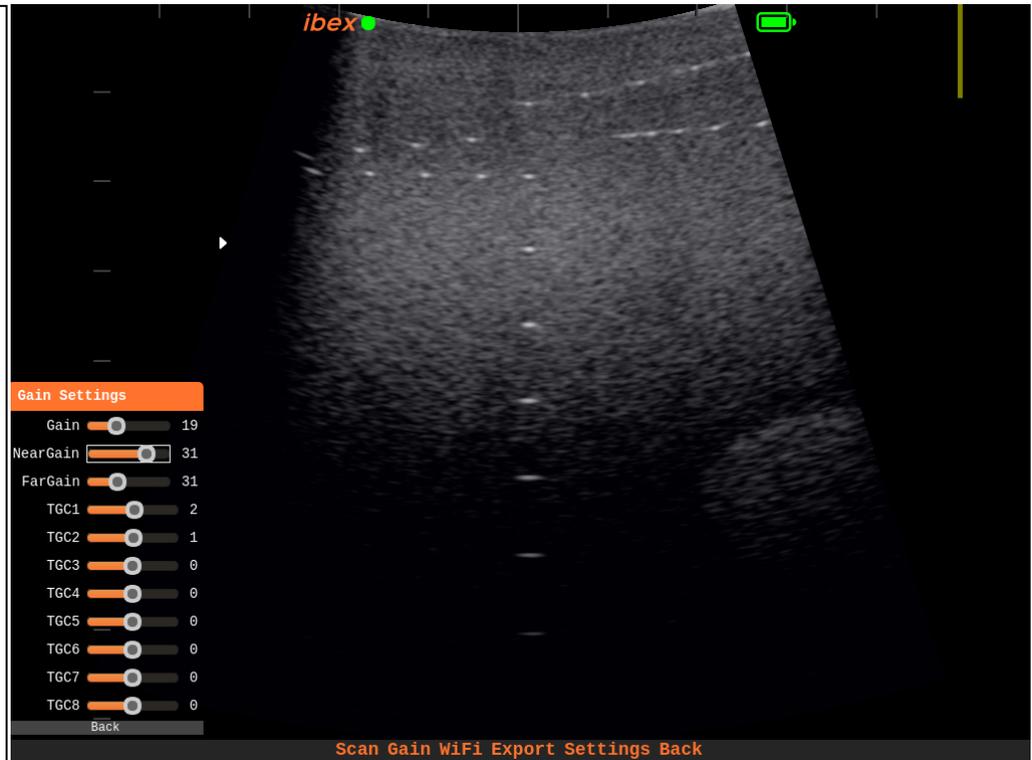
- **Depth-**
Allows the user to control the scan depth.
- **Frequency-**
Allows the user to control the transmit frequency of the transducer which will influence resolution at different desired depths.
- **THI-**
Feature allowing for a cleaner image with better contrast and less artifact. THI doubles the image acquisition time, reducing the frame rate.
- **Line Density-**
Adjusts the number of vertical scan lines that make up the image. A higher setting provides a finer image but increases the image acquisition time, reducing the frame rate.
- **Synthetic-**
Adjusts beam sharpening to provide a sharper image with better resolution.
- **Minimum Frame Rate-**
Set the minimum frame rate. To achieve the minimum frame rate the LITENXT reduces the image width.
- **Enhance-**
This setting can help sharpen edge detection of the active image by enhancing strong echoes.
- **Contrast-**
Higher number, greater contrast, fewer grays. Only affects ultrasound image; not screen.
- **Gamma-**
Used in conjunction with Contrast, Gamma helps adjust the grayscale intensities of the active image.
- **Persistence-**
Persistence is a frame averaging feature which allows you to manipulate images based on application requirements. As a rule of thumb, when persistence is low, the image is faster and grainier. When persistence is high, the image is smoother and slower; smearing is possible.
- **Transmit Focus (TX Focus)-**
Used to set the transmit focus position. This is indicated by a white arrow on the left side of the image.
- **Auto Standby-**
Allows the system to go into a sleep mode when the transducer is not in contact with tissue to maximize battery life. The system comes out of standby when tissue contact is detected.

Gain

OVERALL GAIN:

To adjust the overall gain, press the Left/Right arrow keys. Use the left and right arrow keys to decrease/increase the brightness of the entire field.

When adjusting specific GAIN or TGC values, a yellow bar will appear to indicate the area to be adjusted.



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).

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 above.

WiFi

There are two modes of connecting the LITENXT to WiFi enabled devices: Direct and Station.

DIRECT mode

Allows the LITENXT to connect and stream images directly to a WiFi enabled device such as a phone or tablet.



STATION mode

Allows the LITENXT to connect to an existing WiFi network.

Export

Allows the user to offload stored images and loops to the removeable USB flash drive.

Eject

Allows the user to safely remove the USB flash drive.

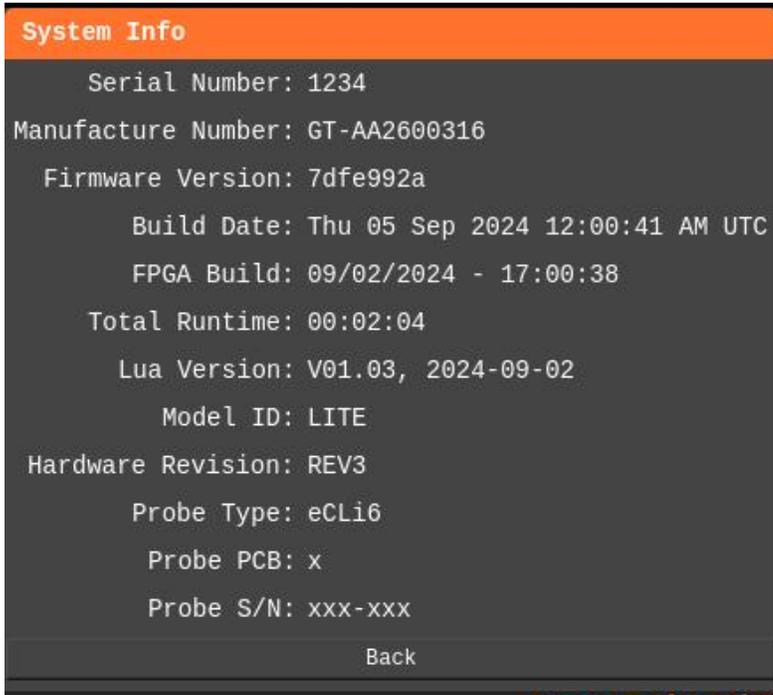
Settings



The Settings tab has a drop-down menu with additional system settings and controls.

System Info

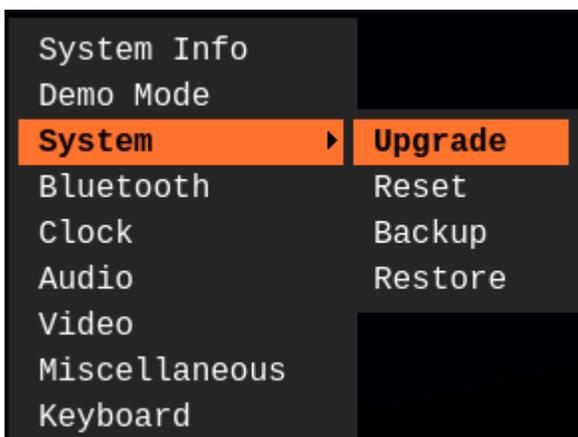
This screen provides the user with the pertinent information for the LITENXT system. This information may be requested should your system require maintenance.



Demo Mode

Demo Mode is a feature that allows the user to place a series of selected videos in a file that will continuously loop for demonstration purposes. The selected videos must be placed in the top-level DEMO folder on the USB flash drive.

System

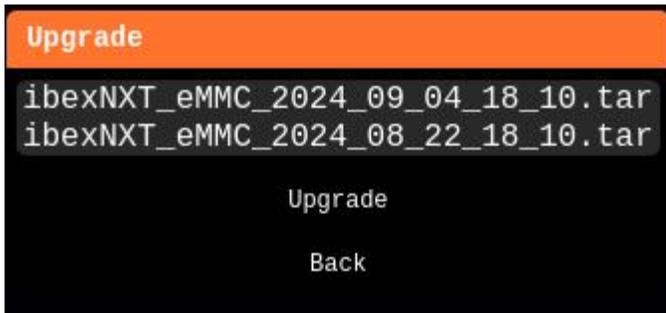


In the Maintenance menu the user can perform advanced system operations. This includes upgrading the system firmware when available to keep your LITENXT operating at its best.

System Options

1. Upgrade- This is where the system firmware can be updated.

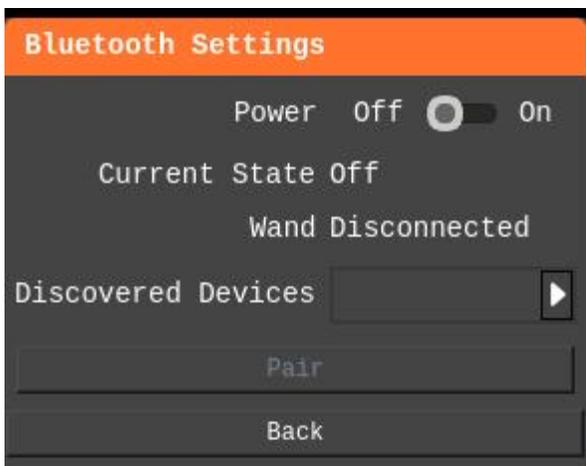
The system firmware contains all operating software for the system. E.I Medical Imaging recommends you keep your system updated to the latest version of the firmware to take advantage of new features and enhancements. Firmware file names have a .tar extension. For example: 01.03.00002.tar



2. Backup- Automatically creates a backup image of the current firmware and all saved images/videos to USB flash drive. A progress bar will display while backup is being created.
3. Restore- Reloads the saved backup version.
4. System Reset- Restores the system to factory defaults and erases all saved images.
5. Reboot- Restarts system

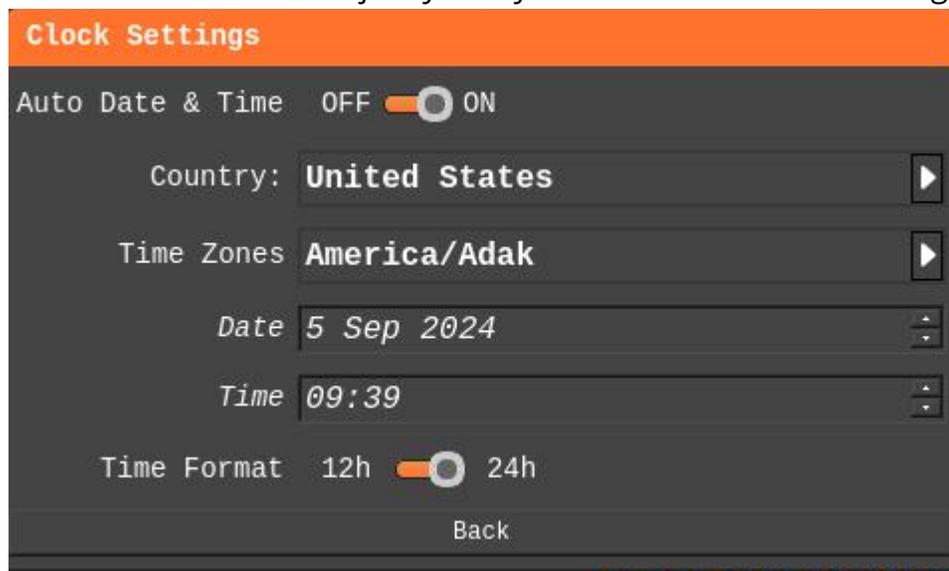
Bluetooth®

The LITENXT utilizes Bluetooth® to connect with RFID readers and applicable remote-control devices.



Clock

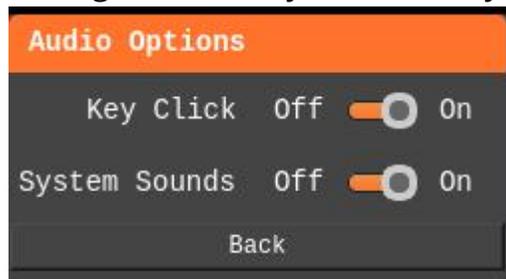
Use this menu to set/adjust your system's date and time settings.



 **Note- Auto Date & Time is OFF by default. In order to enable Auto Date & Time, the LITENXT must be connected to the internet.**

Audio Settings

To change audio settings on the LITENXT, enter the Audio Options menu: Settings include Key Clicks and System Sounds.



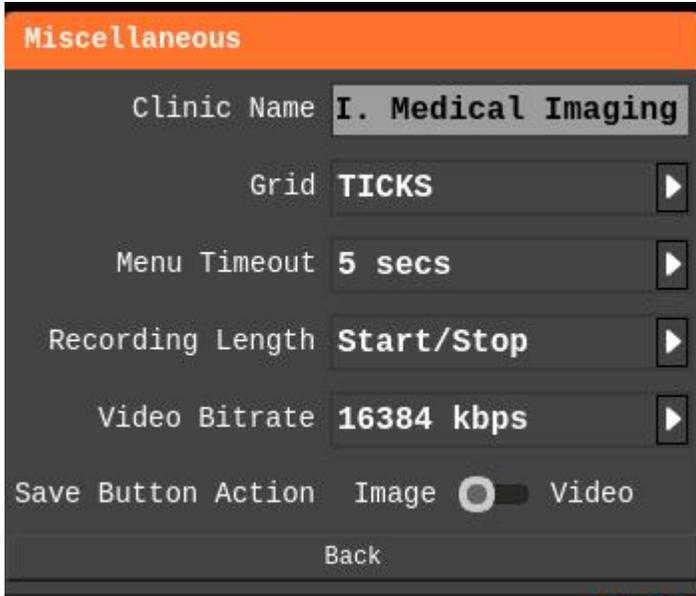
Video

Video setting options allow the user to control the appearance of the image in the headset.



Miscellaneous

Various system settings for additional user customization



Clinic Name

Set the name of your clinic here. This will appear at the bottom of jpegs and avi's saved on your system.

Grid

Adjust this setting to add measurement rules to the background. These scale appropriately as you adjust the depth.

TICKS – Ruler style tick marks display along the top and left edges of the image area.

FULL– A full grid display allows for visual area estimation without drawing a bounding region.

CIRCLES- Concentric circles display allowing for visual area estimation without drawing a bounding region

NONE- No grid lines displays

Menu Timeout- Adjusts the duration menus appear on the screen.

Recording Length

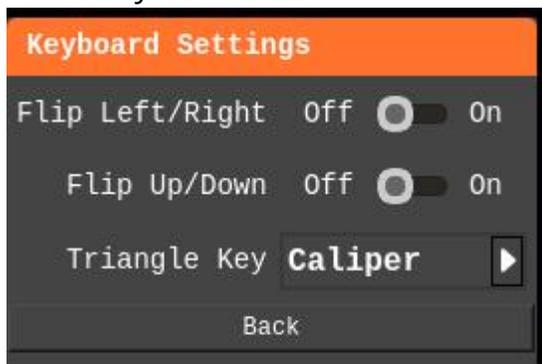
Sets the recording length when the record button is pressed. For 2,4,8 seconds, the recording will automatically stop. For Start/Stop, the recording begins when the  is pressed and stops when the  button is pressed again.

Save Button Action

Sets the default function of the  button from Image to Video.

Keyboard

Settings in the Keyboard Settings menu allows the user to change the orientation/ functionality of the keyboard.



Flip Left/ Right- Depending on the orientation of the LITENXT in use, the user may want to flip the keys to reflect use.

Flip Up/Down- Depending on the orientation of the LITENXT in use, the user may want to flip the keys to reflect use.

Triangle Key-

- Caliper: Allows the user to switch from normal mode (fullscreen/menu hidden) with a single key click, instead of the normal key sequence Freeze □ Select
- Snapshot: Allows you to save still images
- None: No action

Manipulating Images

Freezing Images

The IBEX LITENXT system allow you to freeze any active image for further analysis.

Pressing the  **Freeze** key gives you the ability to:

- Save images.
- Take measurements of structures in images.

Saving Videos/ Images

1. By default, the  **FILE** key records a 4 second clip when live scanning. This can be configured to other desired video lengths (2,4,8 seconds, start/stop).
2. When the system is in the FREEZE state, the FILE key saves a .jpg image.
3. These default settings can be changed in Settings → Miscellaneous

There are two different ways to configure your LITENXT to save images, complete the following:

Configure the SAVE key option set to images in the Settings → Miscellaneous menu

Or

Configure the TRIANGLE key set to Snapshot in Keyboard Settings

Press the SAVE  or TRIANGLE  key.

The IBEX LITENXT saves images in the .JPG (Joint Photographic Group) file format. (for example: eCLI6-<EXAM-TYPE> -<DATE>-<TIME>.jpg

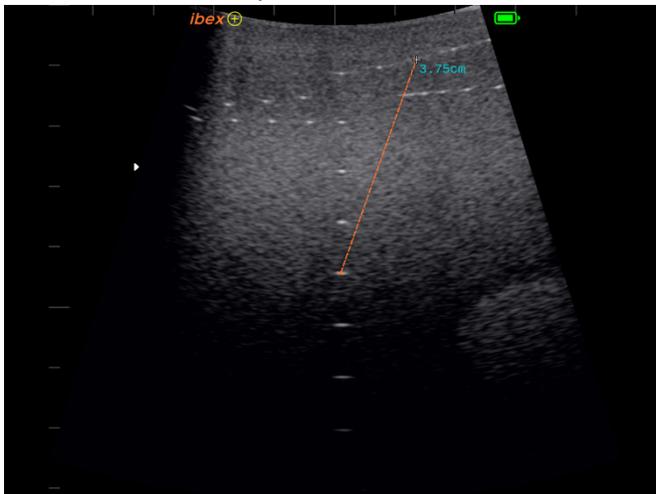
Calipers and Measurements

Distance Measurements

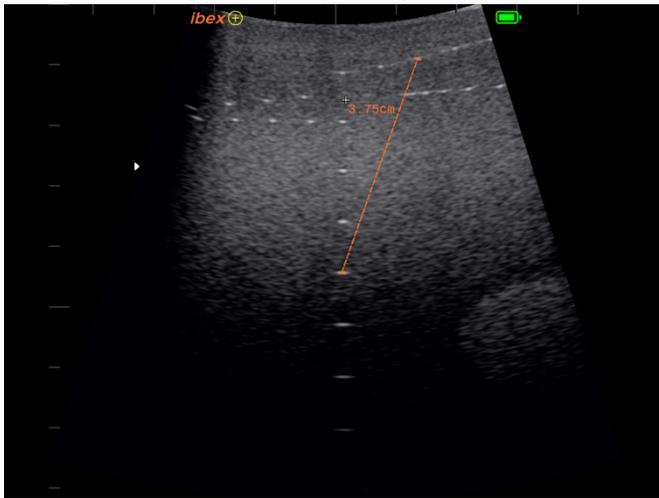
- Move the cursor (navigation keys) to the start point → hit Select → move the cursor, a light blue label appears at the start point with the current distance in cm.



- When at the end point hit Select, the measurement line color changes to orange.

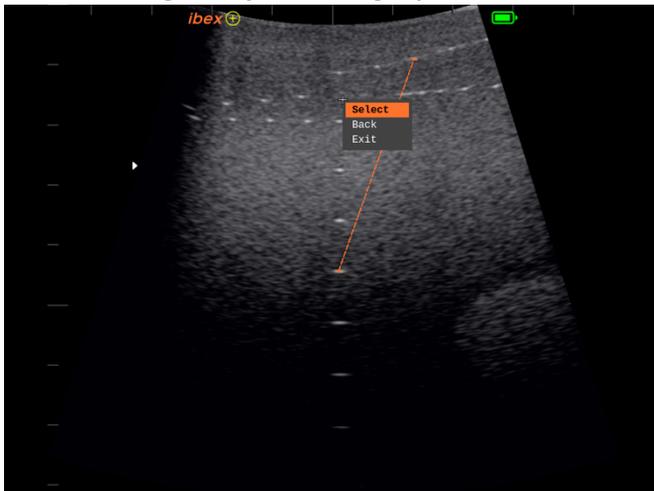


- Use the navigation keys to place the label, hit Select when done, the label turns orange.



Editing Measurements

- Press triangle key to bring up the Edit menu.



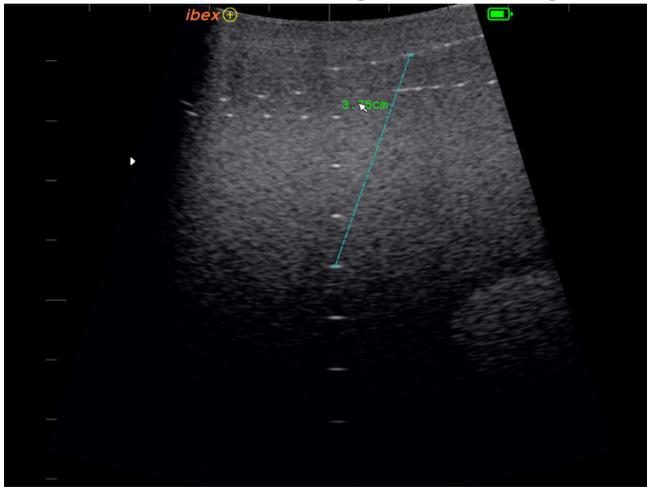
- Choose select, the cursor changes from the crosshair to an arrow. Move the arrow to the item you want to edit. When the cursor is hovering over the item, it will change to light blue.



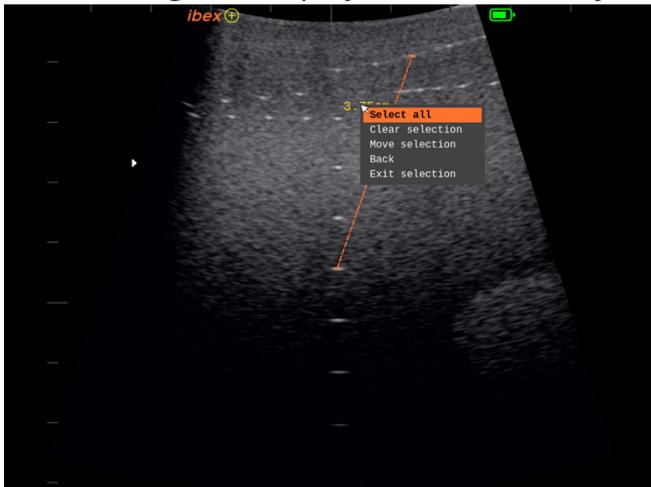
- Press Select and the item color changes to lime.



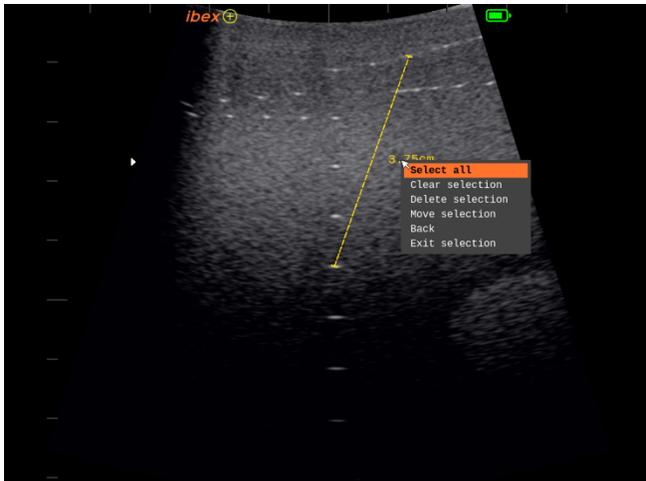
- If you want to select the label only, hit select again, the label stays in lime color. The measurement line changes back to light blue.



- Press Triangle to display the menu if only a label is selected.



- If not, the selected items change color to yellow.



- Move selection, the cursor changes to the arrow crosshair and the navigation keys will move the selection



- When finished editing, hit Select and the cursor will change back to an arrow to show selection mode. To abort, hit Freeze.
- To get out of selection mode, hit Freeze.
- More measurements can now be made.

Using WiFi on your LITENXT Ultrasound System

IBEXStream™—Sharing Live Images

IBEXStream lets you share the live video feed to an iOS or Android™ device. It will connect up to 4 devices at a time.

There are two ways of connecting to a LITENXT from your wireless device.

- Configure your phone and LITENXT to connect to the same WiFi network
- Or configure the LITENXT to supply its own WiFi [**WiFi Direct**] and have your device connect to that network.

Connecting Over WiFi DIRECT

- 1 Power on the LITENXT.
- 2 Enable **WiFi**.

To access the **WiFi** settings:



- 3 By default, **WiFi** is disabled. In the WiFi Mode menu, select DIRECT
- 4 The LITENXT will then automatically create an access point for connection.

Optionally you can specify:

- The frequency to be used, either 2.4GHz or 5GHz.
- The channel to be used. This is help full if you are working in an environment with multiple WiFi networks to select the least congested channel for the best performance.
- The SSID (**S**ervice **S**et **I**dentifier) the name of the network that will show on your WiFi compatible device.
- The Passphrase to secure your network.

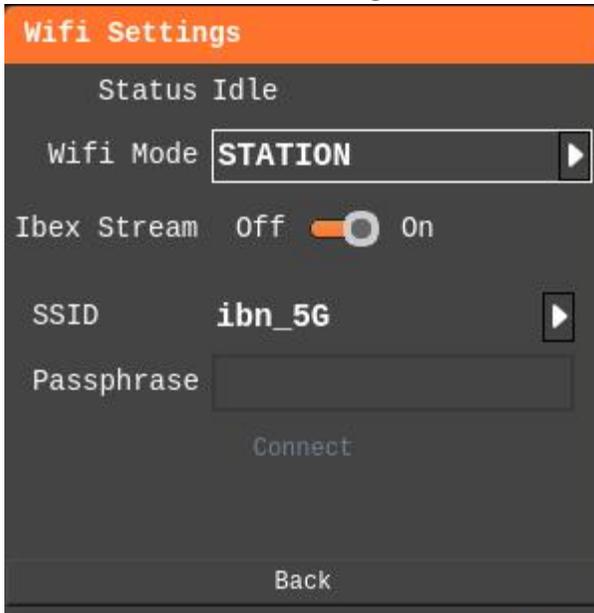
At this point your EVO is configured to stream over **WiFi Direct**.

 **Note: When using 5GHz channel, a country must be selected as different countries have security measures in place for this frequency band. Country would have been selected on the Welcome screen during initialization. However, if this needs to be changed when travelling, this can be found in Clock Settings.**

Connecting Over WiFi STATION

- 1 Power on the LITENXT.
- 2 Enable **WiFi**.

To access the **WiFi** settings:



- 3 In the WiFi Mode dropdown menu, select STATION
- 4 Enter the Passphrase to secure your network.

At this point your EVO is configured to stream over WiFi STATION.

Configuring iPhone® or iPad®

Download **IBEXStream™ App** from *Apple iTunes*.

1. Click **Settings** on your iPhone or iPad.
2. Select **WiFi**; this should bring up a list of networks.
3. You should see **LITENXT** [unless you changed the SSID in step 3 above] from that list. Select it.
4. You'll be prompted for the network passphrase [**IBEXlite_1**, unless changed]. Once you have entered the correct passphrase, your iPhone or iPad should connect to the LITENXT network. Exit **Settings**.
5. Launch the **IBEXStream App**.
6. It should auto-detect the unit and start display the video stream from the LITENXT.

Maintenance and Cleaning of Your IBEX LITENXT Ultrasound

Make sure you clean your IBEX LITENXT ultrasound system and transducer after every use. Routine cleaning and maintenance will help ensure the prolonged life of your system. While the IBEX LITENXT 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 LITENXT ultrasound system or associated transducers.

IBEX LITENXT:



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

- Close and LOCK the door before cleaning.
- It is NOT recommended that water be directly sprayed into the IBEX LITENXT hinge section!
- For disinfecting the system, Sporidicin® is recommended
- Allow the system to air dry or wipe down with a clean, dry towel
- IBEX LITENXT can be gently washed down with a hose and cloth

InSite NXT Headset:

- 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

Transducer Care and Maintenance:

- 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)
- DO NOT use mineral oil on the IBEX LITENXT transducer.
- To disinfect the Linear probe, use a Sporidicin® sterilant.

Failure to observe above proper maintenance and care instructions may void your limited warranty

Warranty

E.I. Medical Imaging builds quality products with a solid reputation. We offer the following warranties:

One Year Limited Warranty

Extended Warranties Available

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 your warranty period with respect to labor and for your specific warranty period with respect to parts, the Product will be free from defects in materials and/or workmanship.

The InSite® video headsets are covered under this limited warranty from date of purchase, provided the headsets are used in accordance with the safety instructions outlined in the User manuals and have not been abused or misused in any way as determined by the technical staff upon inspection of the headsets. The final determination of coverage under this limited warranty will be made at the E.I. Medical Imaging's manufacturing facility.

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.

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.

Limitation of Liability

To the maximum extent allowed by applicable law, in no event will E.I. Medical Imaging nor anyone else who has been involved in the creation, production or delivery of the product be liable to you or any other person for any direct, indirect, consequential or incidental damages, or any special or punitive damages (for example, damages for loss of profits or business interruption) arising out of the use of or inability to use the Product, a defect in the Product, or the failure of the product to perform, even if E.I. Medical Imaging has been advised of the possibility of such claims or damages. In no event will E.I. Medical Imaging be liable, regardless

of the basis of the claim or action, for any amount exceeding the purchase price actually paid for the Product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

Repair Warranty

Any repair work performed by E.I. Medical Imaging shall be warranted with respect to parts and labor to be free from defect in materials or workmanship for a period of (90) ninety 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 Service Issue (SI) 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 RETURNING YOUR EQUIPMENT FOR WARRANTY SERVICE.

This Limited Warranty gives you specific legal rights; you may also have other rights which vary from state to state.

To make a warranty claim, call 1.866.365.6596.