

# Tecnoscan BL



Instruction manual



01.	Scanner menu	pag. 3
02.	LED sequence	pag. 4
03.	Activation	pag. 5
04.	Tecnoscan Connect App	pag. 6
05.	Usage files	pag. 18
06.	Factory reset	pag. 18
07.	Charging	pag. 19
08.	Care & maintenance	pag. 20
09.	Specifications	pag. 21
10.	Service centres	pag. 22

Hereby, Tecnovet SL, declares that the radio equipment type Tecnoscan BL is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: <https://www.imv-imaging.com/esg-doo/>

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

If the user makes any modifications not expressly approved by the party responsible for compliance it could void the user's authority to operate the equipment.

This device complies with Industry Canada's licence-exempt RSSs. 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 the device.

Cet équipement est conforme et se soustrait de Licence au Cahier des Charges sur les Normes Radioélectriques (RSS) d'Industrie Canada.

L'opération est soumise aux deux conditions suivantes:

1. Cet appareil ne cause pas d'interférence; et
2. Cet appareil accepte toute interférence, y compris les interférence pouvant provoquer un fonctionnement indésirable de l'appareil

Contains IC4511-WL18DBMOD



Agência Nacional de Telecomunicações

"Este equipamento não tem o direito a proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados."

Note: All Tecnovet products are for animal applications only. The product shall not be used outside its scope as declared by the manufacturer.

## 1. Scanner menu

### Power button (A)

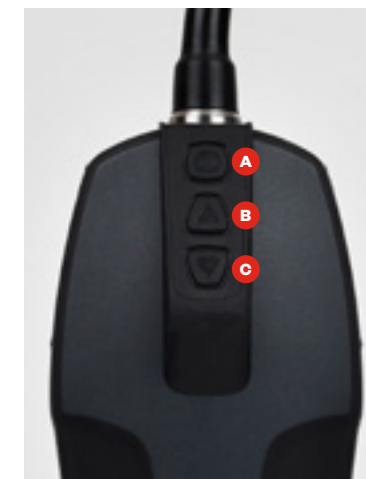
- To switch on/off the scanner press and hold until it beeps.
- Short press to freeze the image.
- If on a congested Wi-Fi channel, double press to change channel when no viewing devices are connected.

### Up button (B)

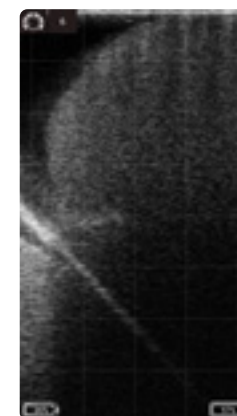
- Adjust gain.
- Save videos.

### Down button (C)

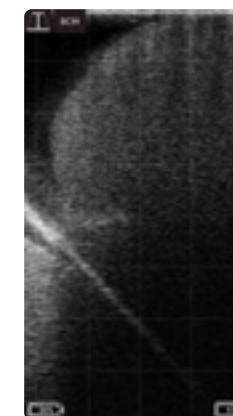
- Adjust depth.
- Save images.



## 1.1 Scanner menu



In live scanning pressing "Up" button will bring up the gain menu.



Pressing "Down" button will bring up depth menu.

Once the gain or depth is visible, pressing the "Power Button" will select that setting. Use the Up and Down buttons to adjust the selected settings.

## 1.2 Saving images and videos using the scanner buttons



Freeze the image using "Power button" Press "Up" will bring up "Save Cine".



Freeze the image using "Power button" Press "Down" will bring up "Save Image".

Once the desired option is visible, pressing the Power Button will select that option.

Note: The scanner will store the last 300 frames (10-12.5 seconds depending on the selected scan depth) in its internal memory. To store on the scanner, the scanner must be Frozen. During save, particularly cine save, the app will pause while frames are downloading and saving the data while scanning. It is recommended that you save images and videos directly from the app where possible. The cine loop must be downloaded by the app before switching off, otherwise it will be lost. The scanner can store up to 100 images in its internal memory, these images are retained after power off and can be downloaded by the app at a later time.

## 2. LED sequence



Power LED

Wi-fi LED

### POWER LED

Blue flashing	Scanner turning on
Blue	Scanner on and battery between 66-100% charge
Yellow	Scanner on and battery between 33-66% charge
Yellow flashing	Scanner on and battery between 0-33% charge

### WI-FI LED

Blue flashing	Scanner ready for smart device to connect, nothing connected
Blue	Smart device connected

### BOTH LEDS

Yellow flashing	Software updating
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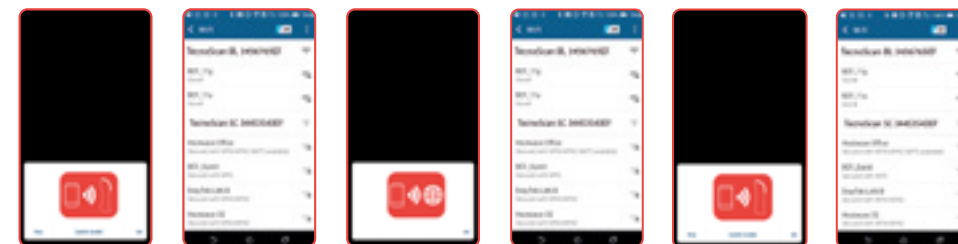
## 3. Activation

### 3.1 First time use

Download the Tecnoscan Connect from Google Play or the App store.

You are likely to be prompted for a scanner software update on first time use. Please see Scanner Update section.

To activate the scanner, ensure that the scanner is charged and that you have a local Wi-Fi internet connection. This is only necessary the first time you connect the scanner.



1. Press "Power button" to switch on the scanner. Open app on the smart device. The app will request to connect to the scanner. Click OK.
2. Select Tecnoscan BL from the Wi-Fi page and return to the app. The app will get the serial number from the scanner.
3. App requests to connect to the internet. Click OK.
4. Select your local Wi-Fi network to connect to the internet.
5. App retrieves the license from Tecnovet's license server and the app will request to connect back to
6. Select your Tecnoscan BL from the Wi-Fi page and return to the app.

After a few seconds, the ultrasound image will appear. Touch anywhere on the screen to bring up the live scanning menu.

Note: If the Wi-Fi LED is flashing on the scanner it is not connected to any smart device.

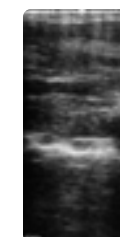
### 3.2 Normal start up process



1. Switch on the scanner and wait until the Wi-Fi LED illuminates. Launch Tecnoscan Connect App. App requests to connect to scanner.



2. Select your Tecnoscan BL from the Wi-Fi page. Return to the App.



3. It can take up to 10 seconds to connect and start receiving ultrasound. You are now ready to scan.

### 3.3 Scanner Updates

The app automatically checks the Tecnovet licence server for scanner software updates when connected to Wi-Fi.

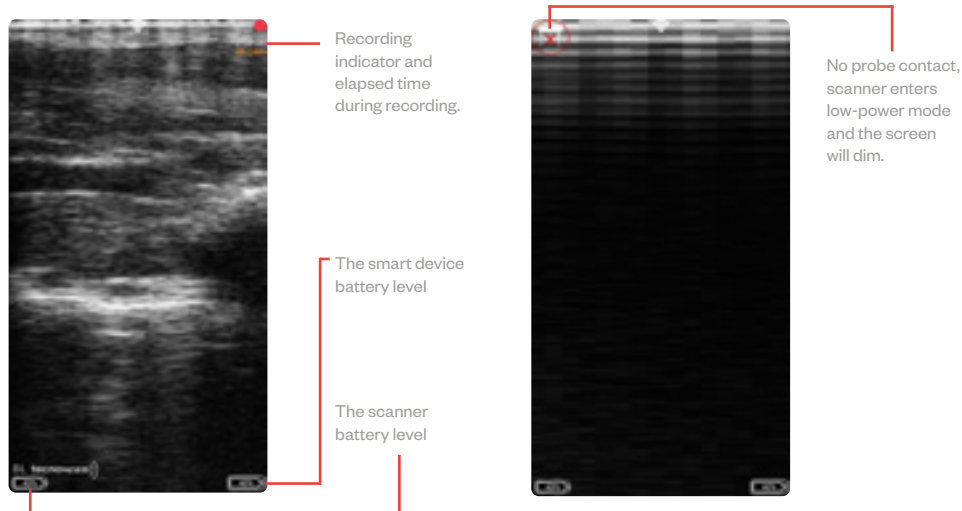
After connecting to an Tecnoscan BL, you may be prompted to update the scanner software. The scanner will only update if the battery is above 50% charge.

Press OK or Cancel. Pressing OK will cause the scanner LEDs to flash yellow - the scanner will take roughly two minutes to update. Press cancel if you wish to update later.

Once the update is finished the scanner will switch off. The scanner software version number can be checked in the User Settings section.

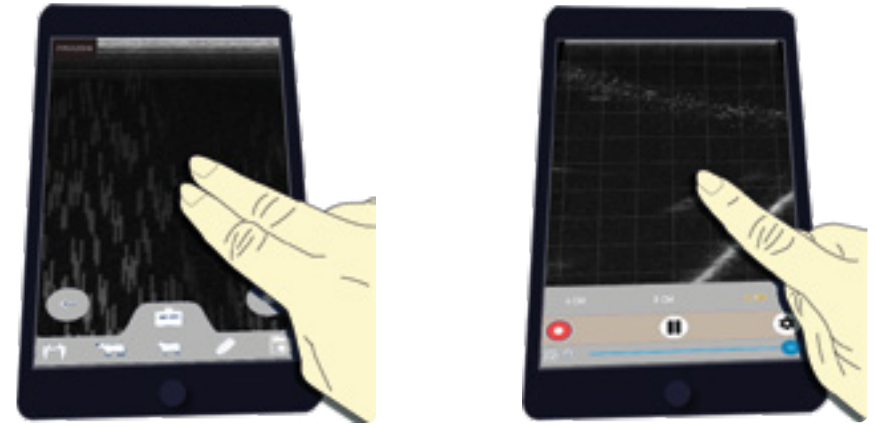
## 4. Tecnoscan Connect

### 4.1 Live scanning



\*Change the channel in Wi-Fi settings. No indicator: clear channel on the 5GHz band. This is the recommended state. White indicator: clear channel,

but is on 2.4GHz band, it is more prone to interference. Orange/red indicator: channel has other networks or scanners on it. This is likely to cause interference issues.



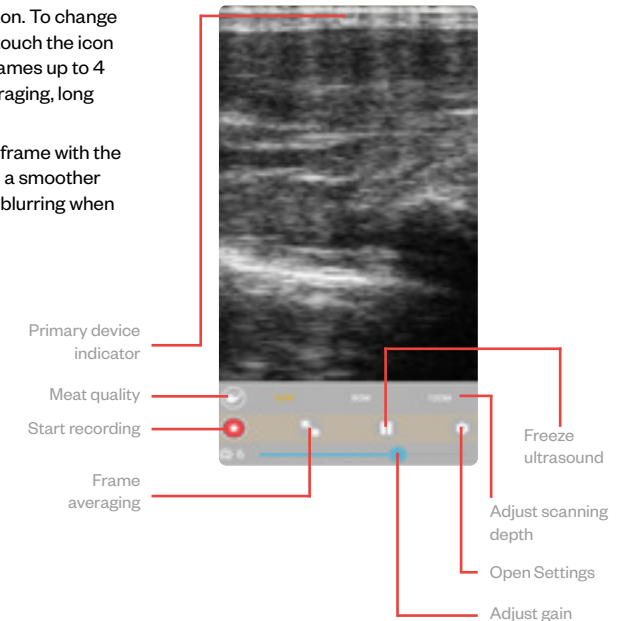
Touching the screen with two fingers simultaneously will freeze the image.

Touching the screen with one finger will open the main menu.

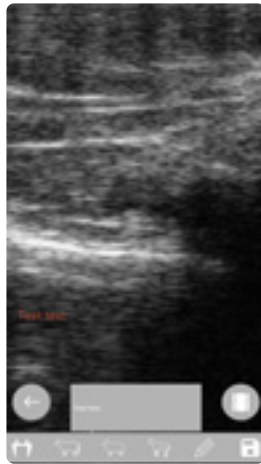
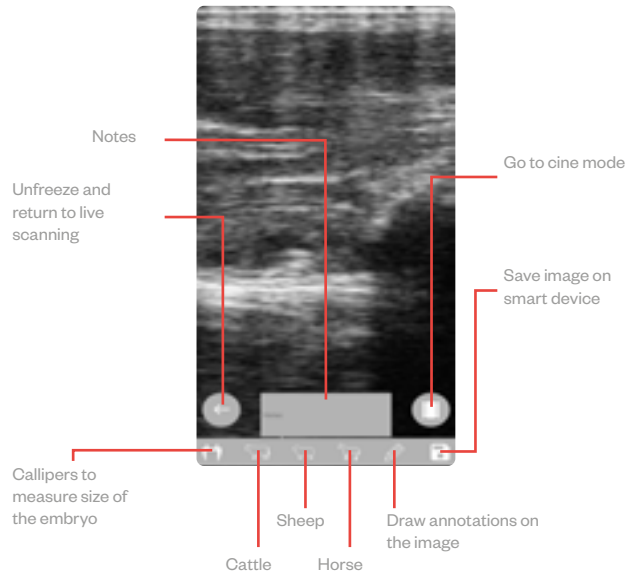
### 4.2 Main menu

To enable frame averaging, touch the icon. To change the number of frames being averaged, touch the icon (each touch increases the number of frames up to 4 then returns to 2). To disable frame averaging, long press the icon.

Frame averaging combines the current frame with the previous 2, 3 or 4 frames, this produces a smoother image with less noise, but at the cost of blurring when the probe is moving quickly.

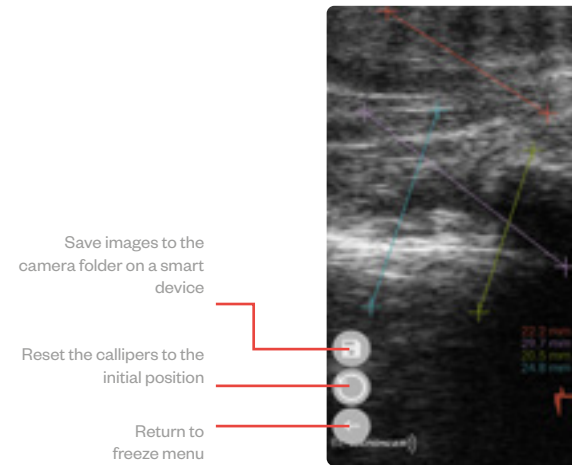


### 4.2.1 Freeze menu



Note: Touch in the text area to type, up to 4 lines of text may be entered and will appear as red text with may be dragged to a preferred location. This text will be present on any saved images.

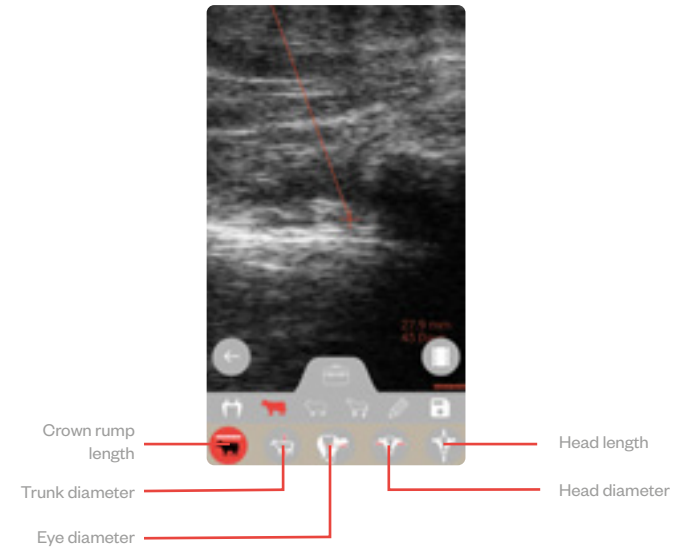
### Callipers



### Cattle



Note: Use your finger to move the cursors.



## Gestational measurements available

Crown-Rump length (distance from the top of the skull to the end of the body)

14mm - 180mm,  
33 - 76 days

Trunk diameter (width of the ribcage at the widest part)

14mm - 123mm,  
53 - 133 days

Eye diameter (diameter of the eye socket)

3mm - 28mm,  
62 - 241 days

Head diameter, (width of the skull at the widest point)

14mm - 86mm,  
55 - 135 days

Head length (distance from the top of the skull to the end of the nose)

21mm - 146mm,  
56 - 134 days

## Horse 🐎

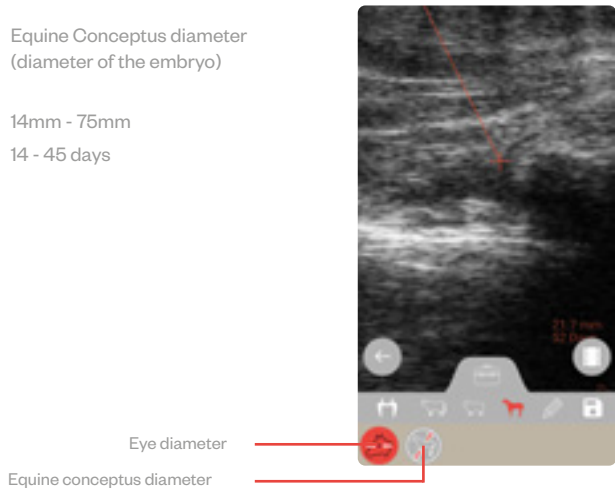
### Gestational measurements available:

Eye diameter (diameter of eye socket)

9mm - 35mm  
99 - 344 days

Equine Conceptus diameter (diameter of the embryo)

14mm - 75mm  
14 - 45 days



## Sheep 🐑

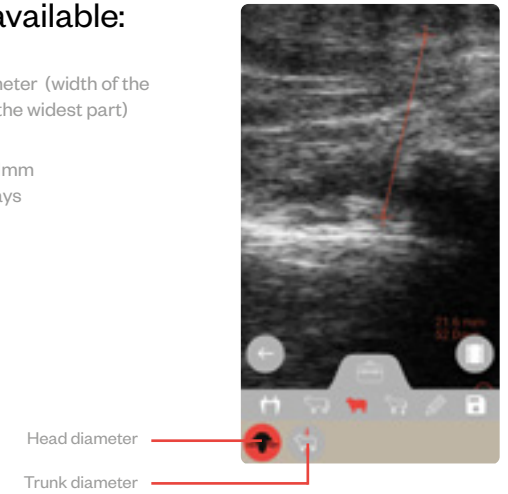
### Gestational measurements available:

Head diameter (width of the skull at the widest point)

19mm - 66mm  
48 - 121 days

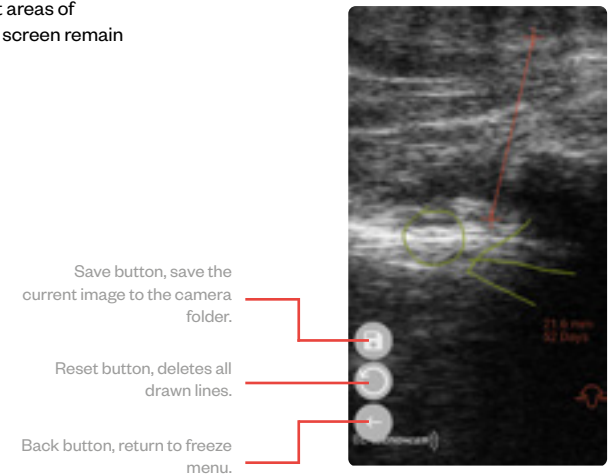
Trunk diameter (width of the ribcage at the widest part)

14mm - 101mm  
49 - 126 days

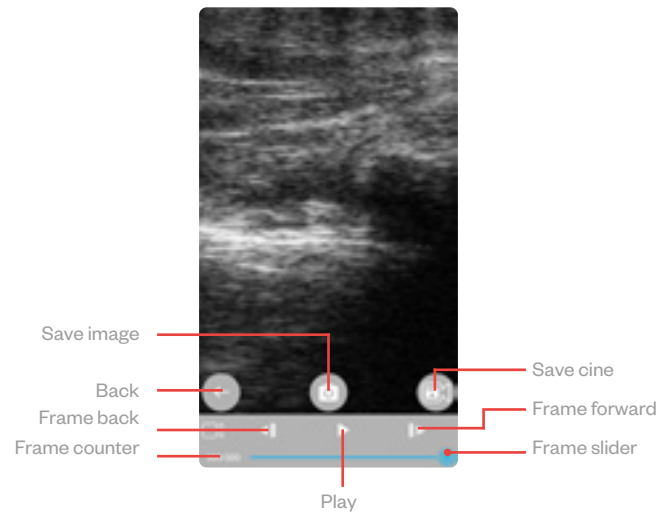


## Freedraw 🖍️

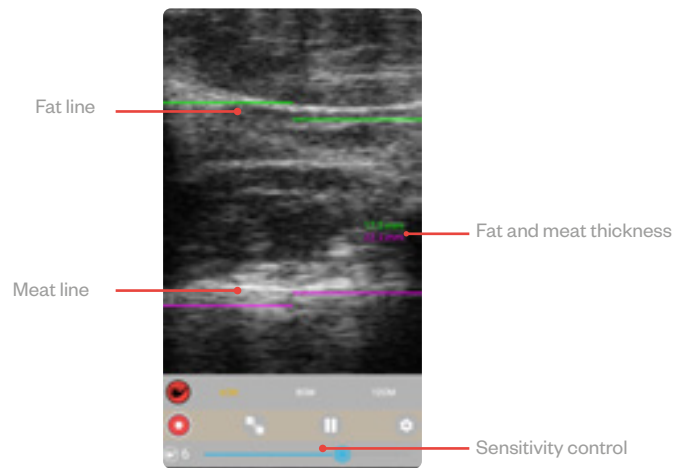
Touch and drag to draw on screen, can be used to make simple annotations or to highlight areas of interest. Any measurements placed on screen remain visible.



## Cine mode



## 4.2.2 Meat Quality



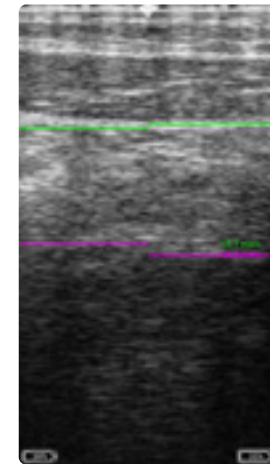
To enable meat quality, touch the icon, to disable, touch the icon again.

When in meat quality mode the app will automatically find the fat/muscle boundary and the reflection of the rib and draw horizontal lines at both interfaces.

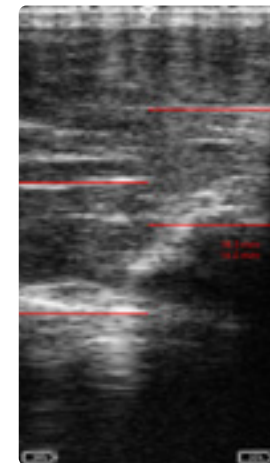
The gain control becomes a sensitivity control, with the sensitivity at minimum, the app looks for the strongest reflection, with the sensitivity at maximum, it uses a mixture of the average value and the maximum, which can compensate for a poor or noisy image.

The fat thickness is the distance from the probe face to the fat line and the meat thickness is the distance between the fat line and the rib line.

If the app considers the measurements to be good, then the fat line will be green and the rib line purple, if not, then the lines will be red.

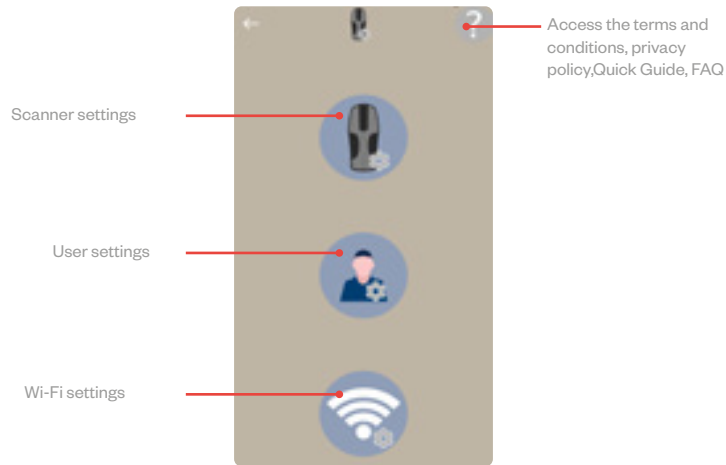


Good measurement

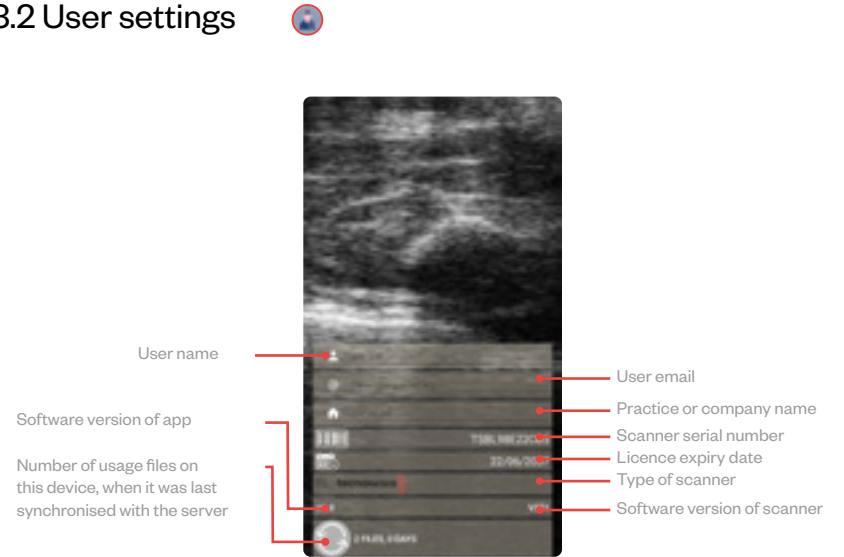


Bad measurement

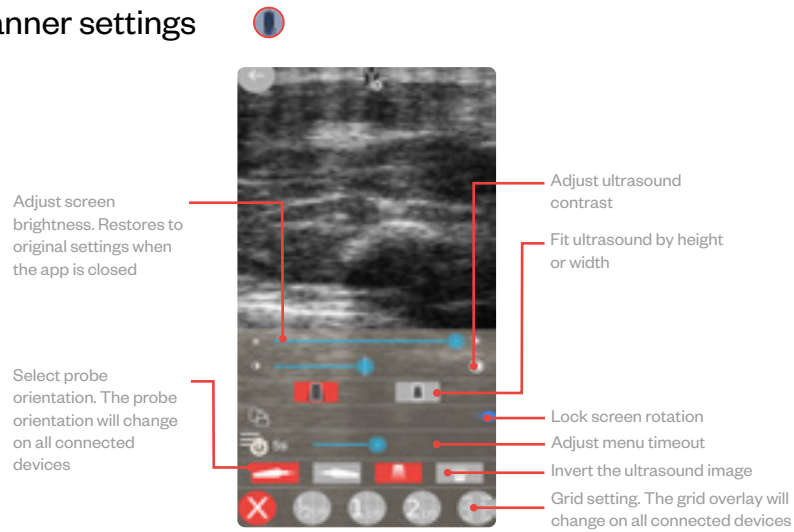
### 4.3 Settings



### 4.3.2 User settings



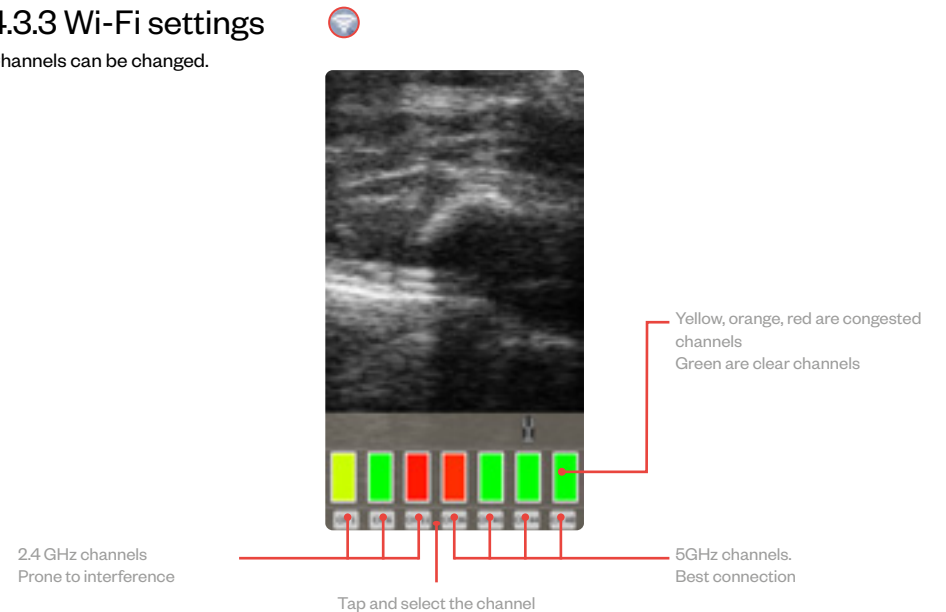
### 4.3.1 Scanner settings



Note: Touching outside the menu area will return to live scanning.

### 4.3.3 Wi-Fi settings

Channels can be changed.





## 5. Usage files

The app will generate usage files.

Events logged:

- Images saved – time and date, scanner serial number and location (if permitted)
- Connecting to scanner
- Freeze and unfreeze
- Entering and exiting standby mode

## 6. Factory reset

A scanner can be reset to factory firmware settings in the unlikely event the scanner fails.

Hold down Power and Down until both LEDs glow yellow and release.

This will take a few minutes and the scanner will then switch off – removing the license from the scanner.

## 7. Charging

The battery can be charged in the charging dock, powered by a standard outlet. It can also be connected in the carry case for in-car charging.

### LED sequence

One blue flashing	Charging, charge level below 33%
First LED solid blue Second LED lashing blue	Charging, charge level below 66%
First and second LEDs solid blue, third LED flashing blue	Charging, charge level below 100%
All LEDs solid blue – fully charged.	Fully charged
All LEDs flashing yellow	Temperature is too high (more than 45 Celsius, 113 Fahrenheit) for safe charging
All LEDs flashing blue	Temperature is too low (less than 0 Celsius, 32 Fahrenheit) for safe charging.



A fully discharged battery should be fully charged within 5.5 hours. While in a good condition, the battery run time will be 5 hours (assuming 50% idle time between scans).

Scanner will enter low power mode when idle.

The Li-ion cells used in the battery pack do not suffer from the 'Memory effect'. For optimal battery longevity, avoid letting the battery run completely down and recharge at approximately 20 Celsius/68 Fahrenheit.

Electrical connection to the power pack is through the gold pads on battery and scanner. Power pack output is protected but care should be taken to prevent short circuiting the gold connector pins and pads.

!

**Warning:**  
To reduce the risk of burns, fire, electric shock, or injury to persons an appliance should never be left unattended when plugged into mains or 12 V cigarette lighter.

## 8. Care & maintenance

### 8.1 Tecnoscan BL & battery

Please note the following important points:

The unit is not sealed against jets of water. Water will penetrate your scanner if it is hosed down or rinsed under a fast flowing tap.

- The unit is NOT corrosion proof and thus it should not be left wet. Take care to detach the external battery and ensure interconnect areas are dry also.
- The battery charger and charging carry case are not waterproof – avoid getting them wet.

#### Probe

While every attempt has been made to make the probe as rugged as possible the crystal array remains vulnerable and should be protected from knocks. The probe has a protective sheath covering the length of cable subject to wear and flexing. Any damage to this sheath or the rest of the cable should be repaired before further use to prevent moisture ingress that will rapidly damage the probe. The probe should be checked regularly for such damage.

#### Cleaning

The scanner, battery and probe can be wiped down with an antibacterial wet wipe, reducing the need for drying. This prevents problems relating to corrosion following wash-down.

The scanner and power pack can also be cleaned using a cloth, soap and warm water. Sponging down or even brief, shallow submersion is less aggressive than rinsing or hosing down.

Warning: The scanner and power pack must not be stored damp – severe corrosion will result. Thoroughly dry the scanner before storage and charging. Take care to detach the external power pack and ensure interconnect areas are dry also.

#### Gels

Use only gels recommended by Tecnovet. Do not store the probe in gel.

#### Storage

Clean and dry the probe head prior to storage in dry location. Do not store the transducer in gels or cleaning/disinfecting solutions. This will lead to premature deterioration of the probe.

Do not expose the transducer to materials containing the following agents:

- Acetone
- Methanol
- Mineral oil
- Iodine
- Freon
- Industrial cleaners
- Materials containing perfumes (lotions, gels, etc.)

#### Warning:

Never sterilize the transducer with autoclave, ultraviolet, gamma radiation, gas, steam or heat sterilization techniques. Severe damage will result.

## 9. Specifications

Size	19x8.3x6.2cm 7.5 x 3.25 x 2.4 in
Weight	800g/1.76lbs
Mechanical	Rugged Glass filled

Polypropylene casing with TPE over mould.

Scanner operating frequency bands: B1=2412MHz-2462MHz and B2=5150MHz-5250MHz

Maximum radio-frequency power transmitted in the frequency bands: 16.1dBm for B1 and 18dBm for B2.

#### User Output

Scanner wireless link to compatible viewing device using Sound-Link over standard WI-FI connection.

Image and video storage

Storage of images and cine loops limited only by available space on smart device linked with scanner.

#### Probe

Broadband straight linear rectal

Active array length 64 mm

Frequency range 4.5 to 8.5 MHz

3 user selectable depths of scan: 6cm, 8cm, 12cm

128 element crystal array.

#### Power and charging

Removable li-ion battery gives 5h runtime \*

Battery charge time 5.5h. Only use Tecnovet approved/supplied battery, 12V vehicle power supply, battery charger and DC power adapter.

ESG-CHARGER: Input: 12V, 2A / Output: 4.2V, 2A.

Tecnovet Vehicle Power Outlet/Cigarette Plug Cable (Model: ACC-DC LEAD):12VDC, 2A Fused.

Only to be used when charging from a vehicle supply.

Only replace fuse with 2A medium acting fuse rated to 125V, 10kA breaking capacity (F2A M125V).

DC power Adapter (XP Power, Model: VEP24US12): Input: 100-240VAC, 0.6A/Output: 12VDC, 2.0A

Battery (Model: ESG-BATT): 3.6Vdc, 6700mAh.

Scanner will enter low power mode when idle.

#### Temperature range

Scanner: -10 Deg C to 45 Deg C \*

Battery Charge: 0 Deg C to 35 Deg C \*

Battery Charger has under and over temperature protection and LED status indication.

#### Warning:

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

\* Best charged at 25 Deg C, frequent charging at 35 Deg C / 95 F may shorten battery lifetime.

#### Warranty

Tecnovet warrants Tecnoscan BL against defects in materials for one year from the date of purchase. Tecnovet does not warrant against normal wear and tear,

#### Smart devices compatibility

Android:

Minimum version: Kit Kat (Android V4.4) Minimum RAM: 2Gb

Minimum Processor: Quad-Core 1.8GHz Recommended WiFi: 802.11 a/ac (5GHz band)

Apple:

Minimum version: iOS 8

Minimum iPhone version: iPhone 5s Minimum iPad version: iPad4