

# iScan **mini**

## Veterinary Ultrasound Scanner



## USER MANUAL

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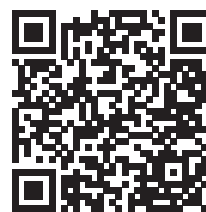
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Declaration of conformity

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We wish you and the users of the product a lot of success in taking care of your patients. We are sure that with our product you will be able to provide good care for your patients.

DRAMIŃSKI S.A. will be glad to receive your feedback regarding the device and this manual.

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## 1. Introduction

### 1.1. Information about the user guide of the device



The individual sections of the user guide describe design, accessories of the device, preparing it to operation, functions and use of the ultrasound scanner. Before starting to use the ultrasound scanner, please read carefully the user guide.

Reading the content of the user guide does not substitute even basic ultrasonography training. We recommend the user to take an authorised ultrasound training.

### 1.2. Warnings, comments and symbols used in the user guide

This user guide uses the following distinguishing signs to emphasise important information:



**Warning!** – Pay particular attention to safety of the patient or of the device user.

**Attention!** – Pay attention to the safety of the device or its proper operation.

**Bold text** – To draw attention to important fragments in the user guide or to make the information clearer and more legible.

*Descriptions of diagrams and figures* – to make details more visible.

The symbols used in the user guide do not provide complete information about safety instructions. Therefore, the safety instructions (section 2) must be read first and followed!

Symbols used in the text:

<x.x.x> – reference to section x.x.x

**(option)** – availability of the feature depends on the version of the device or its equipment

### 1.3. Preliminary information about iScan mini – a portable ultrasound scanner

iScan mini is an ultrasound scanner intended for diagnostics of farm animals. Its main uses include diagnostics of the reproductive tract, confirming and monitoring of pregnancy, determination of the sex of the foetus, examination of the lungs and measurement of backfat thickness. The ultrasound scanner is permanently connected to a broad-spectrum linear rectal probe. The device is equipped with cutting edge technologies to facilitate your everyday work. A precise automatic follicle measurement will speed up work, and WiFi will allow easy sharing of photos and videos from the examination. We are sure that iScan mini will become an indispensable tool in your work.

## 2. Safe use



**Warning! User and patient safety depends on the compliance with the following guidelines!**

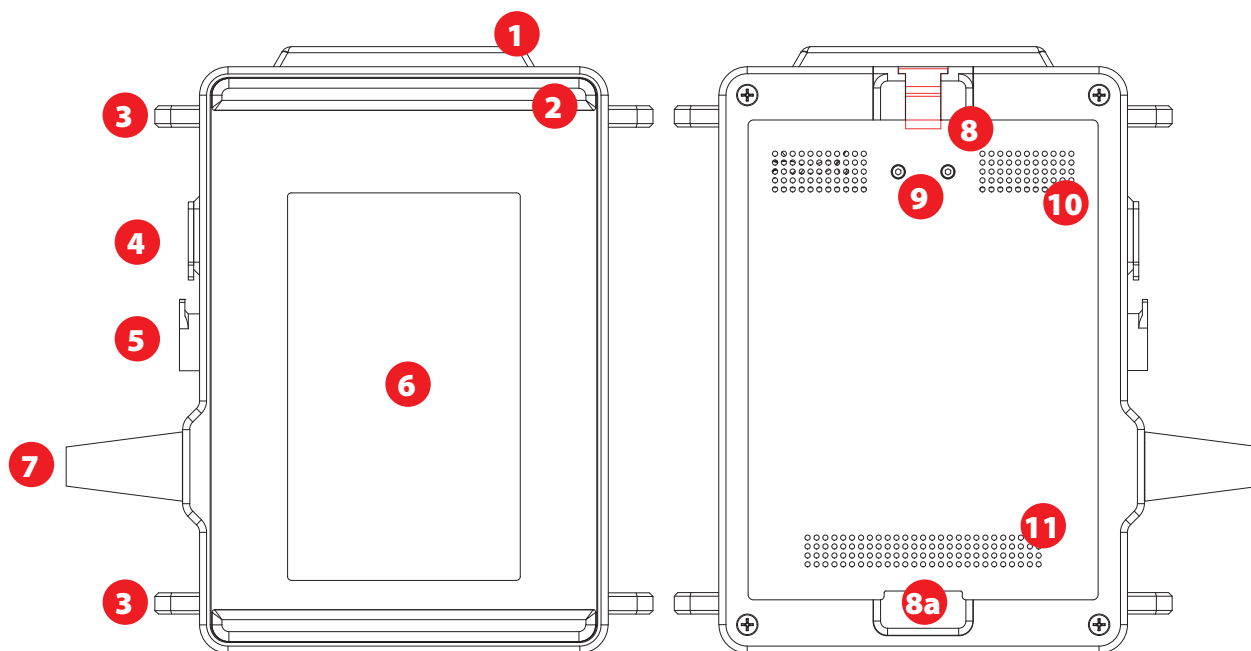
- 1st DRAMIŃSKI iScan mini is a device that should be used only by qualified personnel for diagnostic purposes.
- 2nd The ultrasound scanner and its equipment should be disinfected after their potential contact with contagious substances.
- 3rd The ultrasound scanner cannot be used simultaneously with other high frequency devices (HF).
- 4th The users of the ultrasound scanner are recommended to have regular technical inspections performed by the manufacturer every two years.
- 5th It is forbidden to dismantle the device and perform repairs and adjustments on one's own, except the activities described in the user guide.
- 6th The users of the ultrasound scanner are recommended to regularly check the probe cable and the point where it is connected to the ultrasound scanner against mechanical damage.
- 7th If mechanical damage of the probe or the cable is identified, the device needs to be sent to the service centre.
- 8th The ultrasound scanner has a sturdy design, however, in order to avoid mechanical damage, please, follow the instructions specified in this section of the user guide.
- 9th Avoid exposure of the device to strong sunlight. It is recommended to observe the temperature specified on the labels of the device and its components.
- 10th The user is forbidden to introduce any modifications to the device.
- 11th DRAMIŃSKI iScan mini is an electric device that can be the source of electromagnetic radiation. Its operation can be disturbed by other electric devices, that is why it is recommended to limit the number of electric devices in its vicinity as much as possible.
- 12th When the device and its accessories reach their lifetime, due to the risk for the environment, they should be recycled by specially qualified entities in accordance with the applicable legislation or returned to the manufacturer.
- 13th When using WiFi, it is recommended that the ultrasound scanner is at least 15 cm from the user's body.

### 3. List of components of DRAMIŃSKI iScan mini ultrasound scanner

Item	Name and description	quantity
<b>Standard equipment</b>		
1	Ultrasound scanner with a linear rectal probe	1
2	External battery	2
3	Battery charger with a 230 V charging cable	1
4	Carrying belts	1
5	Waist belt	
6	Transport case	1
7	User guide on a USB drive	1
<b>Additional equipment</b>		
8	OLED goggles	option
9	Linear rectal probe extension for cattle	option
10	Linear rectal probe extension for sheep	option
11	T-holder	option

Any additional accessories for use with the iScan mini ultrasound scanner are available upon agreement with the vendor.

#### 4. Design of the iScan mini ultrasound scanner



*iScan mini – front and rear view*

1. WiFi antenna.
2. Spacer.
3. Hooks for carrying belts.
4. USB C socket.
5. Goggles connection socket.
6. Screen.
7. Probe cable.
8. Battery attachment interlock.
- 8a. Battery attachment.
9. Power supply contacts.
10. Ventilation inlets.
11. Ventilation outlets.

#### Attention!

The ultrasound scanner has a sturdy design. However, during operation and transportation, caution is necessary in order not to subject the device to strong impacts to avoid damaging it. Sockets and ventilation openings should be protected against dirt and moisture.



## 5. Getting started

### 5.1. How to charge the batteries

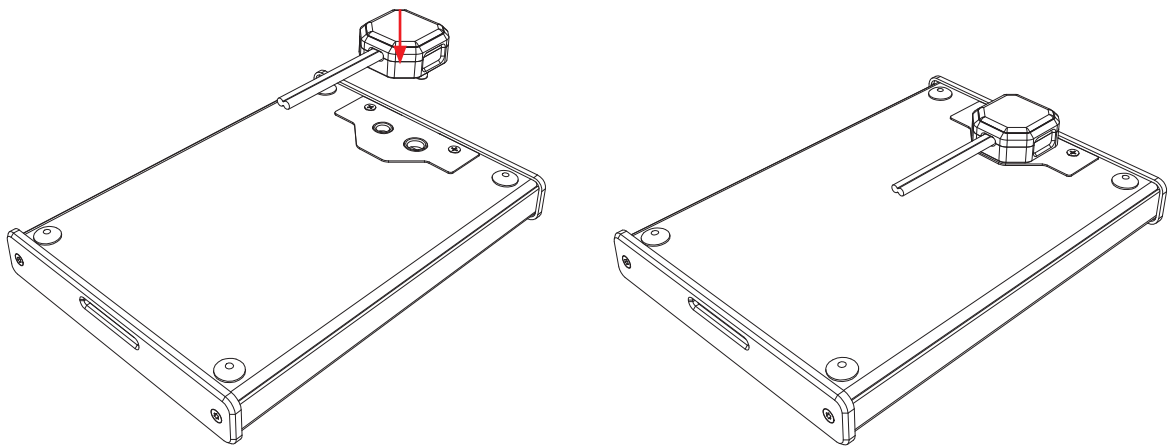
iScan mini is powered by a Li-ion 14.4 V 2.25 Ah rechargeable battery. The battery has an internal thermal fuse protecting it against overheating during charging.

Mascot charger, type 2440, is intended only to charge the batteries of the iScan mini ultrasound scanner. It is adapted to the mains 110-240 V / 60 Hz.

Charging duration: 3 hours.

Operating time: 3h 40 min when fully charged.

In order to charge the battery, connect the charger to the mains, and the plug to the battery in accordance with the diagram:



A colour diode on the charger housing indicates the battery charging level. The red colour means that the battery is discharged, the green colour means that the battery is charged.

**Warning! The battery can be charged only with the charger supplied by the manufacturer.**



**Warning! – It is forbidden to perform any unauthorised repair of the charger nor to dismantle the device.**



**User safety and reliability of the device require that the charger not be used in humid and wet places.**

**Before you start using the charger, always check if its main components, including the cables, are not damaged.**

**Attention! If any damage is detected, disconnect the device from the mains immediately and replace the damaged part with a new one, by contacting an authorised service centre.**

### 5.1.1. Safety measures for handling a Li-Ion battery pack

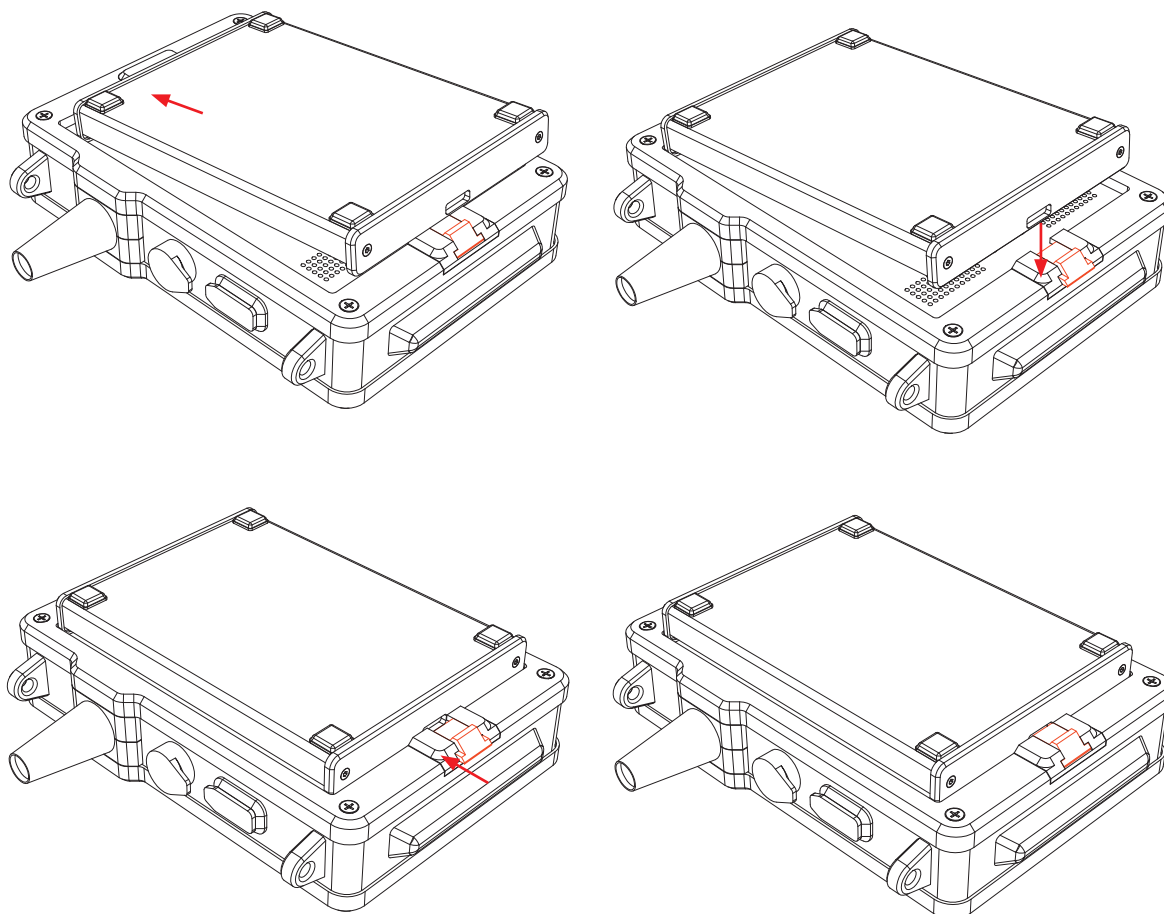
- Never dismantle the battery pack which forms an integrated unit.
- Never short-circuit contacts in the battery pack casing using metal items.
- Do not throw battery packs into the fire nor heat them up.
- Never expose the battery packs to mechanical impact. Do not throw them.
- If you notice electrolyte leakage, stop using the battery pack immediately.
- Never allow liquid to penetrate the battery pack, it may cause a sudden temperature rise and a danger.
- Battery packs should not be left in high ambient temperature, for example, inside a car directly exposed to sunlight, or near a source of heat. Failure to follow these principles can cause leakage of electrolyte from the battery and its damage or shorten its service life.

### 5.2. How to connect the batteries to the ultrasound scanner

The battery is to be connected on the rear wall of the ultrasound scanner.

Before connecting, make sure that the contacts of the ultrasound scanner and the battery are dry.

In order to connect the battery, follow the figure below:



*Connecting the battery*

### **5.3. How to turn the ultrasound scanner on**

In order to turn on the ultrasound scanner:

1. Attach the battery.
2. Press and hold the ON / OFF button until the DRAMIŃSKI logo appears on the screen.
3. Wait about 20 seconds. When the image from the probe appears on the screen, the scanner is ready for work.

### **5.4. Battery – final remarks**

1. Always use the original charger.
2. Avoid extreme temperatures; charging temperature +10 to + 45 ° C; discharge, storage temperature –20 to + 50 ° C.
3. The battery can be recharged.
4. Keep the battery dry and clean.

## 6. How to end operation of the ultrasound scanner

### 6.1. How to turn the ultrasound scanner off

In order to turn the ultrasound scanner off, press and hold the ON / OFF button for approx. 2 seconds.

Remember, pressing the ON/OFF button for a short time will freeze the image.

### 6.2. Cleaning and disinfection

Remember to clean and disinfect the ultrasound scanner after finishing work with it.

Clean it with a wet cloth or paper towel.

**Attention! Never wash the ultrasound scanner under running water!**

**Attention! Remember not to make the battery contacts wet! Prevent water from penetrating the ultrasound scanner through ventilation slots!**

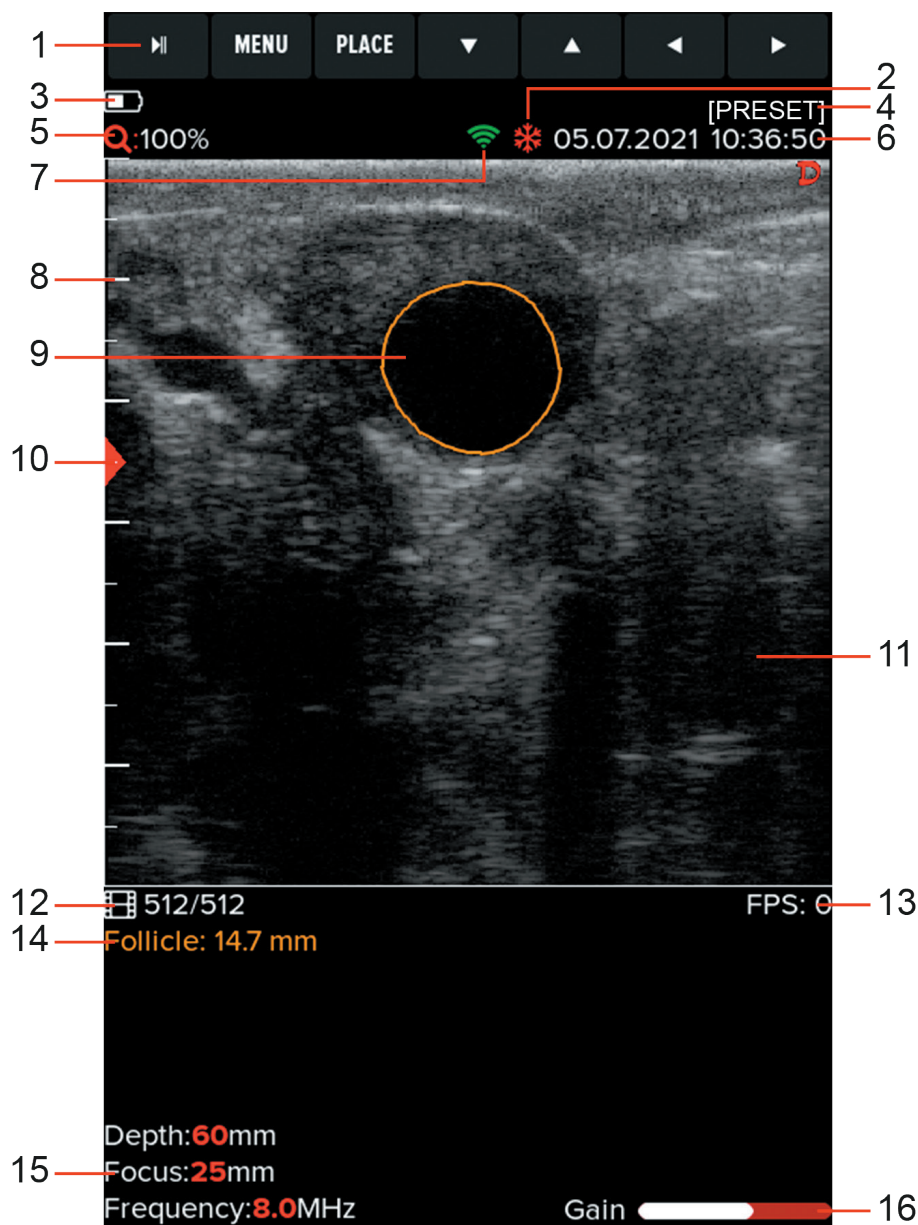
In order to clean the ultrasound scanner:

1. Turn off the device.
2. Disconnect the battery.
3. Put protective plugs into the goggles and data transmission sockets.
4. Wipe the battery, the probe and the ultrasound scanner with a wet cloth or a paper towel.
5. Wipe all elements dry.

To disinfect the ultrasound scanner and its accessories, use the products intended for disinfection of medical devices which do not contain alcohol.

## 7. User control panel

### 7.1. User control panel's structure



*User control panel*

1. Button functions.
2. Information about freeze mode.
3. Battery charge level.
4. Set preset name (if turned on).
5. Zoom.
6. Date and time
7. Information about active WiFi connection.
8. Centimetre scale.
9. Automatic follicle measurement.
10. Beam focusing level.

11. Image sector.
12. Cine loop current frame / all frames.
13. Image refresh rate.
14. Measurement result.
15. Current settings.
16. Overall gain level.

## 7.2. Button functions

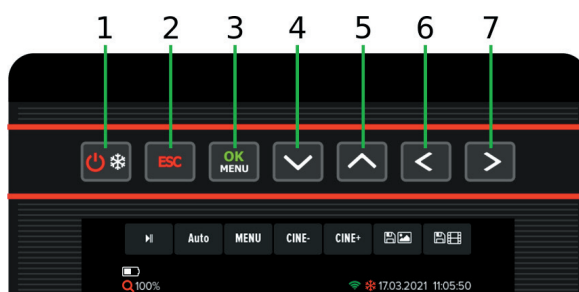
Buttons have various functions, depending on the ultrasound scanner's operation mode. Below are the default uses of the buttons in scanning and freezing mode. Button functions may be modified using the Customize <8.1.> option.

### Imaging mode



1. ON/OFF, ❄️ (Freeze).
2. Gain.
3. OK/Menu.
4. Focus +.
5. Focus -.
6. Depth -.
7. Depth +.

### Frozen mode



1. ON/OFF, ❄️ (Unfreeze).
2. Automatic follicle measurement.
3. Menu.
4. Frame back  
(Cine back – press and hold).
5. Frame forward  
(Cine forward – press and hold).
6. Save image.
7. Save cine.

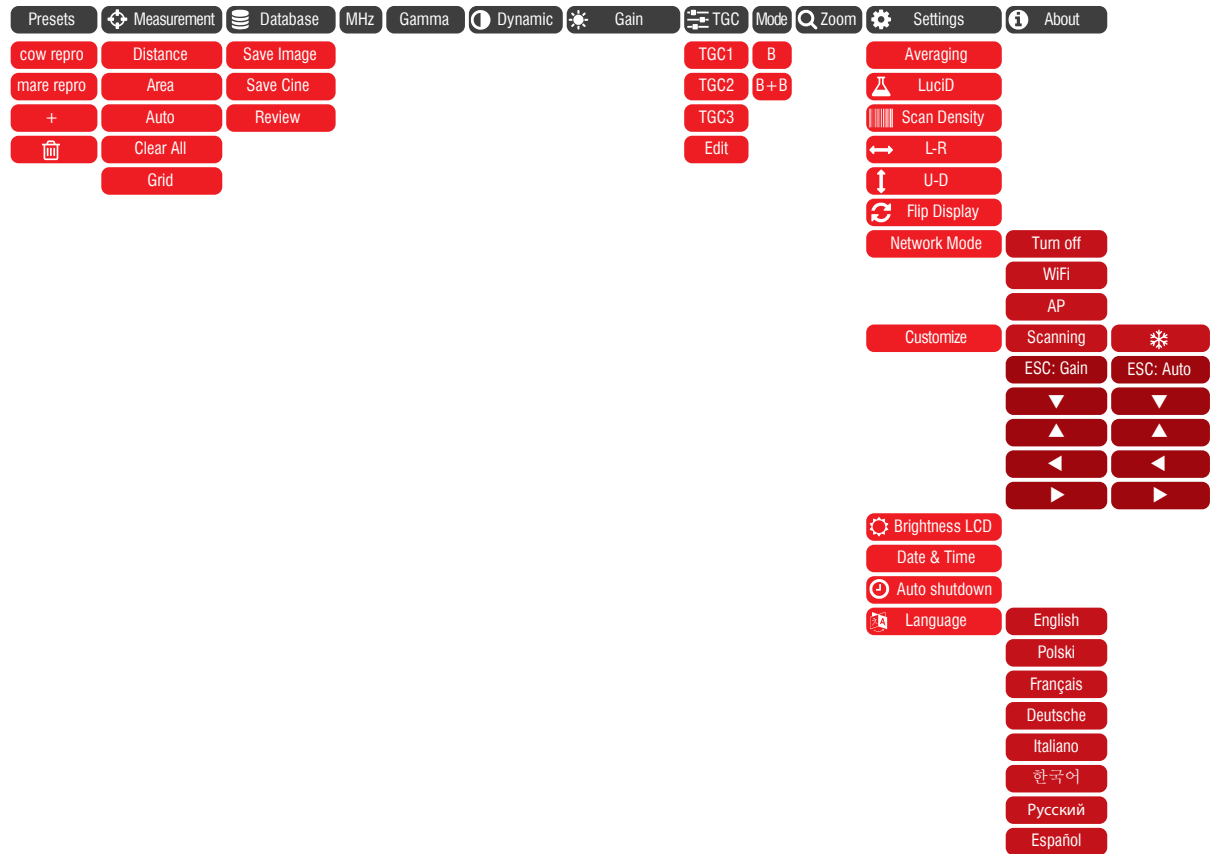
## 8. Menu structure of the ultrasound scanner

In order to open the Menu, press OK.

In order to leave the Menu, press ESC.

When you select certain functions, a tip is displayed on the screen which explains how to change their settings.

The picture below presents the menu structure:



### 8.1. Menu personalisation

You may decide what functions will be assigned to the buttons during scanning and when the image is frozen.

The buttons that may be assigned various functions are: ESC, Left, Right, Up, Down.

Functions that may be assigned to buttons during scanning:

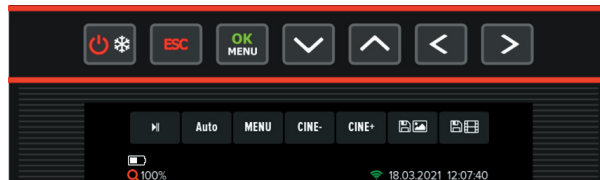
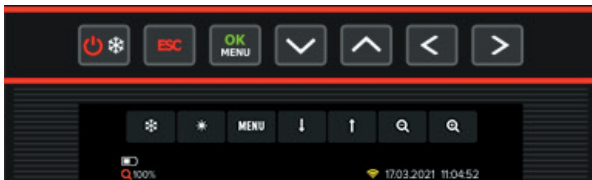
Depth +/-, Focus +/-, Gain, Frequency, Gamma, Dynamics, TGC, B+B, Zoom.

Functions that may be assigned to buttons with a frozen image:

Frame back / forward, Cine back / forward, Distance, CRL, HD, HL, TD, ED, Save image, Save cine, Auto (Follicle).

Default key settings

Examples of personalisation during scanning



In order to personalise the menu:

1. Open the Menu and move to the Settings tab.
2. Select Customize.
3. Select mode: scanning / frozen.
4. Select the button the function of which you want to change.
5. Confirm with the OK button.



## 9. Description of the ultrasound scanner's functions

### 9.1. Setting the parameters of imaging

#### 9.1.1. Gain adjustment

Signal gain may be adjusted completely or in six horizontal image zones. It makes the structures displayed on the screen lighter or darker.

In order to adjust gain completely:

1. Press ESC button.
2. Use the UP / DOWN arrows in order to adjust gain.
3. Confirm with the OK button.

In order to adjust gain in zones:

1. Open the Menu and select TGC and then select Edit.
2. Use the UP / DOWN arrows to select the gain zone.
3. Use the LEFT / RIGHT arrows to adjust gain.
4. Confirm with the OK button.

#### 9.1.2. Scanning depth adjustment

In order to adjust the scanning depth, use the LEFT / RIGHT arrows, where LEFT means scanning of shallowly located organs, and RIGHT means scanning of deeply located organs.

The maximum scanning depth is 15 cm.

#### 9.1.3. Focusing

The ultrasound scanner can change the level on which the ultrasound beam is focused the most. In order to obtain the best effect, set the focusing level at the depth of the examined structure. In the focus the signal is strongest, and image resolution is highest.

In order to set the beam focusing on the selected area, use the UP / DOWN arrows, where UP makes the beam focus shallower, and DOWN – deeper.

#### 9.1.4. Frequency

The probe connected to the iScan mini ultrasound scanner is a broadband, multi-frequency probe. Changing the frequency of operation influences the image resolution and the depth to which the ultrasounds penetrate the body.

It is necessary to remember about the following principle:

1. Higher frequency = better resolution = lower efficient depth of scanning.
2. Lower frequency = worse resolution = higher efficient depth of scanning.

In order to change the frequency:

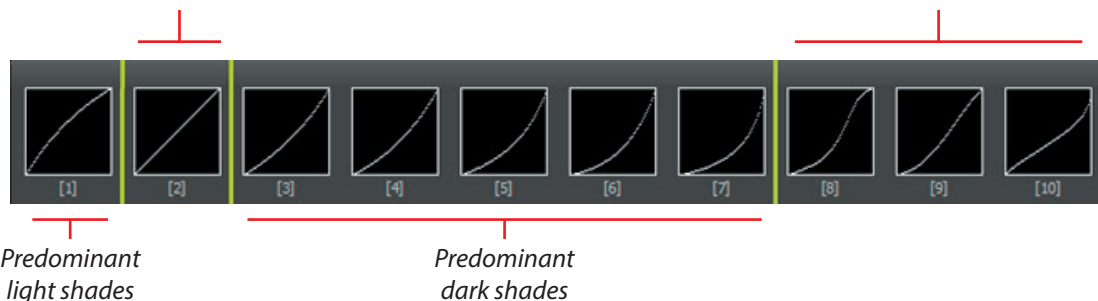
1. Open the Menu and choose MHz.
2. Use the UP / DOWN buttons to choose the most efficient frequency.
3. Confirm with the OK button.

### 9.1.5. Gamma

Gamma adjustment changes the way the grayscale is displayed on the screen.

*Uniform display of all shades*

*High / low contrast*



In order to change Gamma settings:

1. Open the Menu and choose Gamma.
2. Using the arrows, select a proper setting.
3. Confirm with the OK button.

### 9.1.6. Dynamics

Dynamics is the setting which adjusts the image contrast.

The higher the setting, the higher the contrast.

In order to change dynamics settings:

1. Enter the Menu and choose Dynamics.
2. Using the arrows, select a proper setting.
3. Confirm with the OK button.

### 9.1.7. Zoom

Zooming can be adjusted at 20% increments, in the range: 100–160%

In order to change Zoom:

1. Enter the Menu.
2. Select Zoom.
3. Using the arrows, select a proper setting.
4. Confirm with the OK button.

## 9.2. Preset

Presets are settings suited to the type of exam. The user can choose between Cow repro and Mare repro. You can also save the current adjustments of the ultrasound scanner under any name.

### 9.2.1. Loading preset

To choose the optimal settings for an exam:

1. Open the Menu and select Preset.
2. Select an appropriate preset.
3. Confirm with the OK button.

### **9.2.2. Creating a preset**

To create a preset:

1. Optimise the parameters of the examination: gain, TGC, frequency, scanning depth, focus, zoom and gamma.
2. Open the Menu and select Preset.
3. Select New preset.
4. Name the preset.
5. Confirm with the OK button.

### **9.3. How to freeze the image**

In order to freeze the image, press Freeze.

The ❄ message will appear in the upper zone of the screen.

Once the image is frozen, you can go up to 512 frames back.

In order to view the cine loop frame by frame, briefly press the left or right arrow. In order to view the loop continuously, press and hold the left or right arrow. In order to stop the cine loop in a selected moment, again use the left or right arrow.

Pressing unfreezes the image.

### **9.4. Measurement**

The ultrasound scanner is equipped with tools for measuring of: distance, area, automatic follicle measurement.

#### **9.4.1. Distance**

In order to measure distance:

1. Freeze the image.
2. Open the Menu.
3. Go to Measure.
4. Select Distance.
5. A red marker will appear on the screen (▶). Set it in a selected area using the arrows.
6. Confirm the position of the marker by pressing OK.
7. Another marker will appear on the screen. Follow the steps 5 and 6.
8. The measurement result will be shown in the bottom left corner of the screen.

The user can perform up to 4 measurements in one image.

#### **9.4.2. Area**

The area is calculated based on two sections, according to the formula:  $P=A \times B$ .

The result is presented in cm<sup>2</sup>.

In order to measure area of a structure:

1. Freeze the image.
2. Open the Menu and move to the Measurement tab.
3. Select Area.
4. Set two measuring sections as in section <9.4.1>.

**Attention! When using a mobile application, you can draw an outline around any shape and measure its area.**

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### 9.4.3. Automatic follicle measurement (Auto)

The measurement is used to automatically determine the largest dimension of a follicle. For a correct measurement as clear image of the follicle as possible has to be obtained.

The result is presented in mm.

In order to measure a follicle:

1. Freeze the image.
2. Open the Menu and move to the Measurement tab.
3. Select Auto.
4. By using direction arrows place the cursor in the centre of the follicle.
5. Confirm the position of the cursor with OK.
6. If needed use the UP / DOWN arrows to adjust sensitivity and LEFT / RIGHT to adjust the shape of the outline.

### 9.4.4. Grid



1. Open the Menu and move to the Measurement tab.
2. Select Grid.
3. Using the arrows, select the setting and confirm with OK.

## 9.5. How to save data

The ultrasound scanner has an 8 GB internal memory for storing images and cine loops.



### 9.5.1. Saving images

In order to save the image:

1. Save image.
2. Press  .
3. A message will be displayed on the screen: "Do you want to add description? Yes / No."
4. If you decide to add a description, enter the characters using the Up / Down arrows and the Left / Right arrows. Approve by pressing "V".

**Attention! The image can be saved with the marked measurements. The measurements are described in the section: <9.4>.**


### 9.5.2. Saving cine loops

1. Save cine.
2. Press  .
3. A message will be displayed on the screen: "Do you want to add description? Yes / No."
4. If you decide to add a description, enter the characters using the Up / Down arrows and the Left / Right arrows. Approve by pressing "V".

## 9.6. How to load the data onto the screen

### 9.6.1. Loading an image / cine loops

In order to load the image:

1. Open the Menu and move to the Database tab.
2. Select Review.
3. Select a file from the list in order to display it. Cine loop thumbnails are marked with .

4. Confirm with the OK button.
5. After loading the image, you may move to a previous / next image by using the LEFT/RIGHT arrows. Loops will not be loaded in this mode.
6. After loading the cine loop, you can scroll through it frame by frame by pressing shortly the keys labeled Cine – / Cine + or play it by pressing and holding one of these buttons.

### **9.7. How to export data to an external data storage device**

The ultrasound scanner enables exporting data to an external data storage USB device.

The images are exported in .PNG format, and cine loops are exported in .AVI format. The files are saved directly on the external data storage device.

In order to export the data:

1. Connect the pen drive to receive the data to the USB C socket.
2. Open the Menu and move to the Database tab.
3. Select Review.
4. Chose the image which you want to export and select using the Freeze buton.
5. Open the Menu and select Export selected.
6. A dialog box will appear showing the progress of the operation.
7. When the transmission is completed, the dialog box disappears.

### **9.8. Exporting data by WiFi to mobile devices**

For exporting data by WiFi an app is needed, which may be downloaded here:

<http://update.draminski.com/android/app-release.apk>.

The application works on mobile devices with an Android operating system. It enables, among others, browsing of images in the memory of the ultrasound scanner, downloading and sharing them.

To download the images and loops onto the mobile device:

1. Open the Menu and move to the Network Mode tab.
2. Select AP (Access Point).
3. In the phone's WiFi setting select the Dramiński Ultrasound Scanner network.
4. Turn on the application on the mobile device.
5. Select Review to see the list of available images and loops.
6. Select the images and loops and press Download.

The app will create a folder on the phone with images from the ultrasound scanner. Permission for the app to access network and multimedia settings may be required.

**Attention!** When using WiFi, it is recommended that the ultrasound scanner is at least 15 cm from the user's body.

### **9.9. How to delete data from the internal memory**

In order to delete data from the internal memory:

1. Open the Menu and move to the Database tab.
2. Select Review.
3. Select the desired files using the Freeze key.
4. Open the Menu and choose Delete selected.
5. The screen will show a dialog box with the question: Delete? Are you sure? YES / NO.
6. Once confirmed, the data will be deleted from the memory.

Data from the ultrasound scanner may also be deleted using the phone app. You only have to select the images and choose Delete when browsing the ultrasound scanner's database.

## 10. Imaging modes

The ultrasound scanner operates in B and B+B modes.

### 10.1. B Mode

This is the standard mode of ultrasound scanner operation. It enables observing the cross-section of tissues on a real-time grayscale image.

### 10.2. B+B Mode

This mode is used to compare even structures (e.g. ovaries), volume measurements, or showing the structures in different cross-sections.

It consists of two windows displaying images; the image in one of the windows is frozen whereas the image in the other may be unfrozen or frozen.

In order to compare structures in B+B mode:

1. Freeze the image with the desired structure in the middle.
2. Open the Menu and move to the Mode tab.
3. Select B+B.
4. The image will be moved to the right box.
5. Unfreeze the image – the left box will be activated.
6. Continue examination.

Attention! Measuring structures in both boxes is similar to B mode. There is no need to switch the boxes. The measuring point can be marked anywhere on the screen.

## 11. System settings

### 11.1. Frame averaging

This function enables anti-aliasing by super-imposing every two or every four neighbouring frames and displaying them simultaneously.

In order to change the frame averaging:

1. Enter the Menu and choose Settings.
2. Select Averaging.
3. Using the arrows, select a proper setting.
4. Confirm with the OK button.

### 11.2. LucID

LucID is a tool which causes: smoother structure edges, enhancement of parenchymal structures, improvement of contrast.

In order to turn LucID on/off:

1. Enter the Menu and choose LucID.
2. Using the arrows, select a proper setting.
3. Confirm with the OK button.

### 11.3. Scan density

The function enables choosing between an image composed of 128 lines (faster refresh rate, lower resolution) and 256 lines (higher resolution, but lower refresh rate – default setting).

In order to change the interleaving setting:

1. Enter the Menu and choose Settings.
2. Select Scan density.
3. Using the arrows, select a proper setting.
4. Confirm with the OK button.

### 11.4. Change left/right, up/down

This option enables setting the image so that the marker on the screen corresponds to the side of the marker on the probe. It is meaningful for right- and left-handed people during rectal examination. The image may also be reversed upside-down.

1. Enter the Menu and choose Settings.
2. Select L-R or U-D.
3. Using the arrows, select a proper setting.
4. Confirm with the OK button.

### 11.5. Flip Display

This function allows the mirroring of the ultrasound scanner image upside-down.

In order to mirror the image:

1. Open the Menu.
2. Go to Settings.
3. Go to Flip Display.
4. Confirm with the OK button.

### 11.6. Network Mode

In network settings you may turn on the WiFi to connect to a router or commence broadcasting a signal to connect to a mobile app.

#### 11.6.1. WiFi

Connecting to a WiFi network enables updating of the ultrasound scanner software.

In order to connect with a WiFi network:

1. Open the Menu.
2. Go to Settings.
3. Go to Network Mode.
4. Select WiFi.
5. The system will show a list of available networks. Select a network and accept.
6. Should a password be required, use the keyboard displayed on the screen.
7. An icon which denotes an active network connection will appear in the main window.

#### 11.6.2. AP (Access Point)

The function enables broadcasting a WiFi signal to other devices in order to connect them to the ultrasound scanner. Turning on the AP is necessary to use the mobile app.

To broadcast the WiFi signal:

1. Open the Menu.
2. Go to Settings.
3. Go to Network Mode.
4. Select AP.
5. The ultrasound scanner will broadcast a network named Dрамиński Ultrasound.
6. An icon which denotes an active network connection will appear in the main window.

### 11.7. LCD brightness

Adjust the display brightness depending on current lighting conditions.

Adjustment is possible in a scale of 1–15 degrees.

In order to adjust brightness:

1. Open the Menu.
2. Go to Settings.
3. Go to Brightness LCD.
4. Use arrows to set the value.
5. Confirm with the OK button.



### **11.8. Date/Time**

This option enables updating date and time in accordance with the calendar used by the user.

When this option is selected, a dialog box appears in which you can set date and time successively. Subsequent field is activated after confirming the previous one.

### **11.9. Auto Shutdown**

The ultrasound scanner has an automatic switch-off function. This helps to conserve battery power if the equipment is accidentally left on.

To set the time until automatic shutdown:

1. Open the Menu.
2. Go to Settings.
3. Select Auto Shutdown.
4. Use the arrows to select the appropriate setting. The options are: Off, 5 mins, 15 mins, 30 mins, 60 mins.
5. Confirm with the OK button.

If Auto Shutdown is enabled, the system will display a message 20 seconds before the scheduled shutdown. If you do not react, the ultrasound scanner will turn off. If you want to continue working, press any key.

### **11.10. Language**

The ultrasound system can be displayed in English, Polish, French, German, Italian, Korean, Russian and Spanish.

To change the language:

1. Open the Menu.
2. Go to Settings.
3. Select Language.
4. After selecting the language and pressing OK, the system automatically switches to the selected language version.

## 12. Accessories

### 12.1. Goggles

The system of the Dрамиński Head Goggles Displays guarantees clear image in sunny days with great contrast. With 5-step adjustment, every user can set the displays according to their preferences, while observing the safety rules.

In order to connect the goggles:

1. Remove the plug protecting the goggles socket.
2. Connect the plug of the goggles cable to the socket.
3. The system will switch to displaying the image on the goggles automatically.
4. Confirm with the OK button. The image will be displayed in goggles. The ultrasound scanner display will turn off.

Unplugging the goggles plug will automatically switch to the display.

**Attention! Remember to disconnect the goggles and protect the goggles socket with a plug before cleaning the ultrasound scanner!**

**Attention! Protect the goggles against water! It is permitted to clean the goggles with a slightly wet cloth.**

### 12.2. Linear rectal probe extension

The extension is used for a quick endorectal test for pregnancy without the need for the examiner to insert their arm into the rectum of the animal. There are two types of extension available:

- long – for examination of cattle,
- short – for examination of sheep.

In order to secure the rectal probe to the extension, place the probe at the top of the extension and route the cable in the groove.

### 12.3. T-holder

The T-holder is a holder for a rectal linear probe, which makes the use of this probe for abdominal examinations much easier. It can be used, for example, when examining calves' lungs, udders or tendons.

## 13. Maintenance of the device and the probes

### 13.1. Cleaning and disinfection

**Attention! In view of the biological security, it is recommended to clean and disinfect the ultrasound scanner after you finish working with it.**

During use, the device may become strongly contaminated, including contagious material. Immediately after finishing work, the scanner should be cleaned with a wet soft cloth or a paper towel with mild detergent.

The device surface should be disinfected with appropriate substance intended for disinfection of medical and veterinary product surfaces.

**Attention! The ultrasound probe should be carefully disinfected after every use.**

After wet-cleaning, the probe and the ultrasound scanner should be wiped dry with a soft paper towel, if necessary.



**Warning! It is forbidden to use highly concentrated, aggressive and abrasive agents. Such agents can permanently damage the surface of the probe, the display screen and the casing.**

**During wet-cleaning, protect the casing sockets and ventilation slots against humidity.**



**Warning! Use alcohol-free agents to disinfect the probe.**

In order to wash the ultrasound scanner after work has been finished:

1. Protect the goggles and data transmission sockets with plugs.
2. Disconnect the battery.
3. Disconnect the carrying belts.
4. Wipe the ultrasound scanner with a damp (water or mild detergent) cloth or paper towel. Do not wash the ultrasound scanner under running water!
5. Wipe the ultrasound scanner dry.
6. For disinfection, use a proper agent intended for disinfection of surfaces of medical and veterinary devices. Follow the instructions on the label.
7. Clean and disinfect the battery and the probe using damp paper towels or tissues.
8. Let the ultrasound scanner, probe and battery dry in a safe place.

**Attention! The transport case has a vent valve to control the air pressure in the closed case. It is not moisture-permeable. Do not close a wet device in the case. If humidity accumulates in the case, we recommend using car desiccants available in stores and petrol stations.**

### 13.2. Technical inspections

Remember to always check the ultrasound scanner, the battery, the probe and its cable for mechanical damage before starting to work. If you notice anything disturbing (for example, discontinuity of the cable), contact the service centre immediately.

The users of the ultrasound scanner are recommended to have regular technical inspections performed by the manufacturer every two years. It will guarantee the highest safety and durability.

## 14. Transportation of the device

It is recommended to transport the device in the provided transport case. The arrangement of the elements in the case is shown in the following figure:



Placement of the iScan mini system elements in the transport case

1. Ultrasound scanner.
2. Probe and carrying belts.
3. Charger.
4. Additional battery.
5. Charger cable with battery plug.
6. Charger cable with mains plug & waist belt.
7. Service manual (pen drive).

## 15. Operational and technical notes

During and after the examination, protect the head of the probe and the cable against mechanical damage. Remember:

1. To arrange the cable of the probe properly. Improper placing or excessive bending of the cable can cause damage to the wire.
2. To put the probe in the case properly. To avoid squeezing the cable with the cover of the case, as it may cut the wire.
3. To store the probe properly and safely.

**Attention! If the storage temperature happens to fall below 5°C, it is necessary to warm the probe up before turning on the device. Using the ultrasound scanner in extreme temperatures alternatively is unfavourable and can lead to damages.**

### 15.1. Troubleshooting

Symptoms of improper operation of the device	CONTROL ACTIVITIES
The device does not turn on	<ol style="list-style-type: none"> <li>1. Check if the battery is properly attached.</li> <li>2. Check if the battery is charged.</li> <li>3. Check if the device operates with another battery for iScan mini, if available.</li> </ol> <p>Remember that repeated attempts to turn on the ultrasound scanner with a discharged battery may lead to deep discharge and thus to damage to the battery!</p>
The image is disturbed	<ol style="list-style-type: none"> <li>1. Check if the ultrasound scanner is not located near other devices emitting electromagnetic field.</li> <li>2. Check if the probe cable has no mechanical damage.</li> </ol>
The image is too bright or too dark	<ol style="list-style-type: none"> <li>1. Check the settings of brightness, gain, gamma and MHz.</li> </ol>
No charging indication on the battery charger	<ol style="list-style-type: none"> <li>1. Check if the charger is properly connected to the mains.</li> <li>2. Check the power supply in the mains.</li> </ol>
The battery works too short	<ol style="list-style-type: none"> <li>1. The battery was not charged.</li> <li>2. Low ambient temperature.</li> <li>3. The battery is worn out.</li> </ol>

If none of the actions presented in the table is successful, please, contact the service centre of the DRAMIŃSKI company, phone No: **+48 89 675 26 00** or e-mail: **ultrasound@draminski.com**.







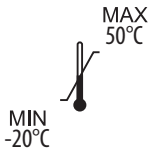

## 16. Technical specification

<b>Dimensions</b>	140 x 170 x 52 mm (width x height x depth)
<b>Weight of the device</b>	1350 g with the probe and the battery
<b>Weight of the battery</b>	292 g
<b>Purpose</b>	Ultrasound diagnostics of farm animals: Diagnostics of the reproductive tract Confirmation and monitoring of pregnancy Determination of sex of foetus Determination of age of foetus Measurement of backfat thickness Ultrasound examination of the lungs Uses other than specified above are not excluded
<b>Image display modes</b>	Screen Goggles Image rotated by 90° Image rotated by 180°
<b>Image refreshing</b>	Up to 44 FPS
<b>Greyscale</b>	256 shades
<b>Gamma</b>	10 settings
<b>Display screen</b>	5.0" diagonal IPS LCD LED 500 cd/m <sup>2</sup> 480 x 800 px
<b>Probe</b>	Electronic, broadband 7 MHz, 60 mm
<b>Method of connecting a probe</b>	Permanent
<b>Keyboard</b>	Membrane, water resistant
<b>Imaging mode</b>	B Mode B+B Mode
<b>Image management</b>	Freezing the image Dimensioning Zoom 100–160% at 20% increments Saving to internal memory Exporting to external storage device Exporting to mobile devices with the use of WiFi
<b>Measurements</b>	Distance Follicle (automatic) Area (from 2 measurements)
<b>Saving data to the memory</b>	Image with measurements Cine loop (max. 512 frames)
<b>Image &amp; Cine loop memory</b>	8 GB
<b>Data transmission</b>	USB-C WiFi (to Draminski App)
<b>Preset</b>	May be created by the user

<b>Power supply</b>	Li-Ion, 14.4 V, 2.25 Ah
<b>Continuous operation when the battery is fully charged</b>	Up to 3:40 hours
<b>Charging of the battery pack</b>	3 hours
<b>Battery charge indicator</b>	Automatic – graphic indicator
<b>Protection class</b>	IP32 Protection against objects larger than 2.5 mm Protection against water dripping at an angle of a maximum of 15 degrees
<b>Operating temperature</b>	From 10°C to +45°C
<b>Recommended storage temperature</b>	From –20°C to +50°C

## 17. Labels

Symbols used on labels attached to this product and their packaging are explained below.

	CE marking which indicates conformity of the product with Directives in force.
	Note, read the user guide.
	Warnings about hazards which concern user safety.
	Date of manufacture of the product.
	Name of the product's manufacturer and its address.
	Dispose of separated with other household waste in accordance with the 93/86/EEC Commission Directive or local regulations.
<b>IP30</b>	The level of resistance of the housing to external factors – ingress of solid foreign bodies and dust, and the degree of protection against water.
<b>SN–</b>	Product serial number for identification purposes.
	Product storage temperature.
	Take care, fragile.



## **18. Warranty**

The manufacturer gives a 24-month warranty and guarantees trouble-free operation of the device used in accordance with this user guide.

The battery is covered with a 6-month warranty.

In case of a technical defect, which was not caused by the user, the manufacturer is obliged to repair the delivered device within no more than 14 business days from the date of delivery of the device to the service centre (Wiktora Steffena 21, 11-036 Sząbruk, Poland) and send back the operational device to the user at the manufacturer's cost.

The warranty does not cover mechanical damage, damage caused by improper use, storage and self-made repairs.

The warranty is honoured on the basis of a proof of purchase (invoice). In order to claim under this warranty, notify Draminski about the alleged defect within a reasonable period of time since the defect has been noticed, however, no later than the expiry date of the warranty.

In order to submit a warranty claim, you need to provide:

1. The device.
2. The copy of the purchase document which determines the name and address of the seller, date and place of the purchase, type of the product and the serial number of the product.

The warranty is provided by **DRAMIŃSKI S.A.**

Wiktora Steffena 21, 11-036 Sząbruk, Poland

Phone +48 89 675 26 00,

E-mail: [serwis@draminski.com](mailto:serwis@draminski.com)

[www.draminski.com](http://www.draminski.com)







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