



Animal profi 2

portable ultrasound scanner
with mechanical probes



MANUAL

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DRAMINSKI S.A. company established and maintains a full quality management system meeting the requirements of the **EN ISO 9001:2008** standard. The system is periodically audited by a notified authority **TUV Rheinland LGA Products GmbH**, Tillystrasse 2, 90431 Nuremberg, Germany, which participates in the conformity assessment.

Declaration of conformity

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We wish you and all the users of our product every success with your patients and we are convinced that with our product you will be able to serve your patients well.

DRAMINSKI S.A. company will be happy to hear any comments from our clients with regard to the device and this instruction.

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I. Introduction

Information on the user manual for the device

The goal of this User Manual is to identify the technical characteristics of the device. It has been written in an accessible way to facilitate, as much as possible, the use of information contained in it.



In no way will reading the manual substitute even a basic ultrasound course. It is necessary that the user of the device completed an appropriate training during authorised ultrasound courses.

Individual chapters of the manual describe the construction, all accessories used during normal use of the device, preparation for work as well as functions and operation of the ultrasound scanner.

Warnings and comments used in this manual

Due to the need of emphasizing important content in this manual, the following ways of highlighting were applied:



Warning! - when necessary to draw attention due to safety of the patient or the user of the device.

Attention! - when necessary to draw attention due to the protection of the device against damage or due to its proper operation.

Bold text - to draw attention to more important fragments in the manual or to make them more distinct or legible..

Descriptions to diagrams and drawings - to make it easier to spot the details.

Since symbols used in the manual do not fully inform about safety tips, you should read the tips first and follow them!

Brief information on ultrasonography

Ultrasound devices are widely used in veterinary diagnostics. Particularly useful and commonly used is the method of real-time imaging, which offers a two-dimensional graphical presentation of tissue sections in 256 shades of grey, in the so called B-Mode (Brightness-Mode).

In this kind of devices the quality of achieved image depends on the frequency of waves emitted by the ultrasonic head. The higher the frequency, the higher the image resolution. However, as the frequency increases, the penetration depth decreases and the wave absorption and dispersion coefficient increases almost linearly.

Diagnostic effectiveness of ultrasonography is considered to be high, but effects of working with this method are significantly impacted by the quality of the device, type of the used probe and the user's individual knowledge as well as following ultrasound scanning standards.

Basic information about the portable ultrasound scanner

DRAMIŃSKI *Animal profi 2* is a modern, specially designed device powered by a battery pack. The ultrasound scanner operates based on a small-sized computer system. Special functions of the computer include: small size and weight as well as a strong aluminium casing which hides high-tech electronics to guarantee top quality image.

DRAMIŃSKI *Animal profi 2* is a unique diagnostic device. Small size and efficient battery power supply make this ultrasound scanner with high quality and resolution LCD LED monitor a portable and ergonomic working tool used by physician in almost every conditions.

DRAMIŃSKI *Animal profi 2* is a diagnostic device used to monitor illnesses and physiological conditions through the application of 2D (black and white) imaging. With *Animal profi 2* you can examine abdominal cavity organs and carry out urological and gynaecological examinations (depending on the probe used with different animal species).

List of *Animal profi 2* ultrasound scanner elements - standard equipment

	<i>Name and description</i>	<i>quantity</i>
1	Device with LCD LED monitor and a membrane keyboard	1
2	Mechanical probe - type as agreed with the Supplier	1
	Second probe – as agreed with the Supplier	
3	Li-ion 14,4V / 3,1 Ah battery power supply pack	2
4	Battery charger with a 230 V power cable	1
5	Connector adapter to transmit images via USB 2.0 to external memory	1
6	Explorer type transport casing with a foam insert	1
7	A carrying strap and a waist belt	1
8	User Manual	1
9	Ultrasound gel (250ml)	1

Any additional accessories to be used with the *Animal profi 2* ultrasound scanner are available after a consultation with the supplier.

II. Construction of DRAMIŃSKI Animal profi 2 ultrasound scanner

The device comprises several main elements:

1. A casing with a membrane keyboard and LCD LED display.
2. Ultrasonic probe connected to a multi pin connector.
3. Battery pack for recharging - external power supply pack (BATTERY PACK).
4. Electrically powered 110-240V/ 60Hz battery pack charger.

1. Ultrasound scanner casing

The housing is made of high quality aluminum. The mounting system for the supplying battery pack is installed on the back panel of the housing.

The following connectors are arranged on the side walls of the housing: USB 2.0 (in the form of the 6 - pin circular connectors) and 12 - pin probe connector. The connectors are closed with the special protecting plugs when not in use.

The description and location of housing components is presented on the following pages of this manual.

Attention!

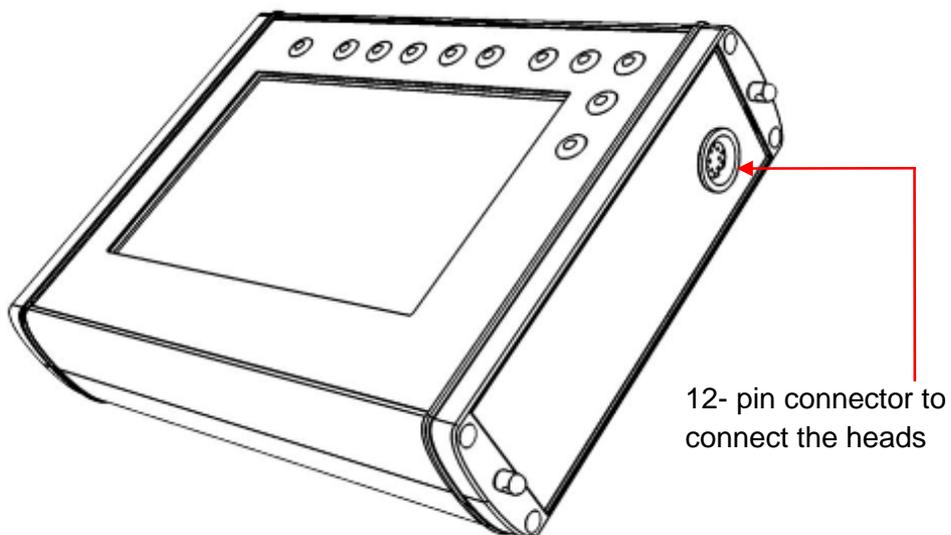
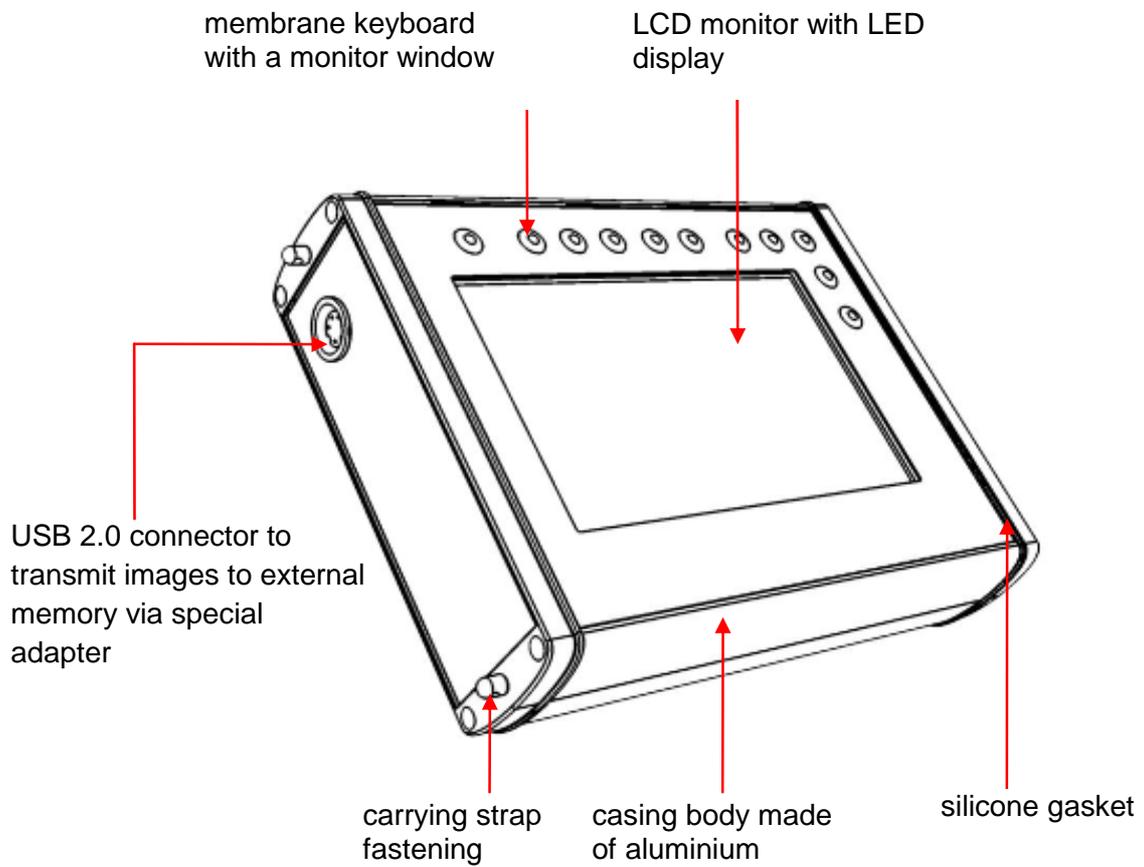
The ultrasound scanner has a strong construction, however it should be operated and transported with due care in order not to expose the device to strong impacts to avoid potential damage. Probe connectors should be protected against dirt and moisture.

The high quality LCD monitor with a 7" LED display, which is used in this device, is characterised by a very wide viewing angles, excellent contrast and brightness as well as resolution that guarantees very good display of the ultrasound image. The screen has a brightness adjustment option in its menu.

Functions and location of membrane keyboard buttons with their description are shown in the drawings below.

The ultrasound scanner is an advanced hi-tech device. Miniaturization and independent source of power make the scanner a fully mobile and easy-to-use tool even in tough conditions.

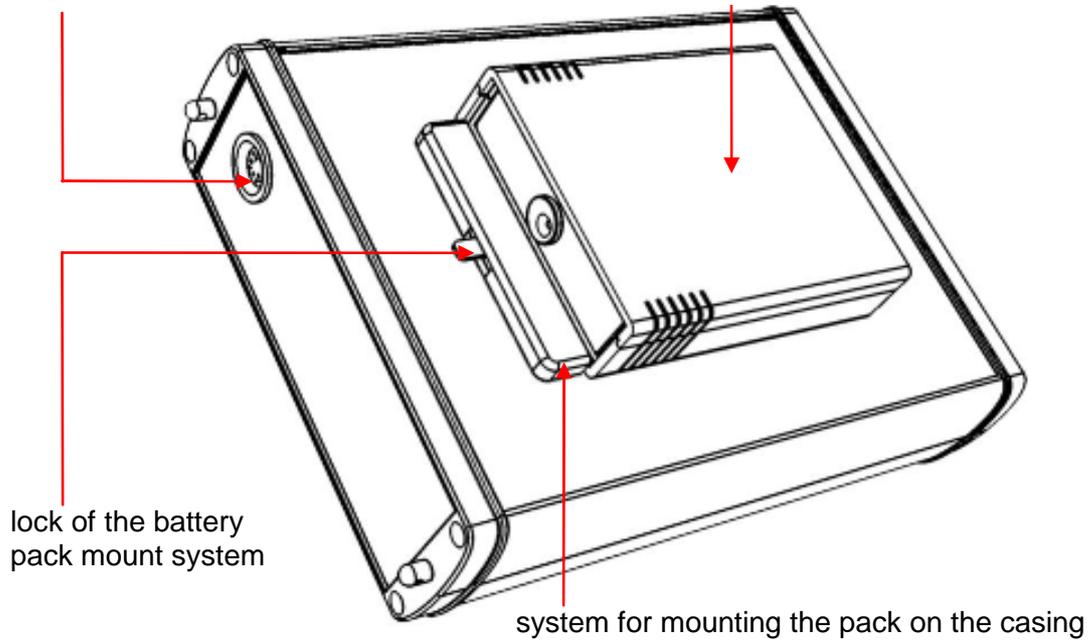
View and description of casing elements



View of the housing rear wall with the pack installed

ultrasonic probe
connector socket (port)

removable external battery pack



2. Ultrasonic probe

Probe (head) is an important element of the device.

DRAMIŃSKI Animal profi 2 ultrasound scanner has one port but it is compatible with two types of mechanical, sectorial probes, they are:



Rectal, sector probe
5.0 MHz (4-7 MHz),
scanning angle 180°.



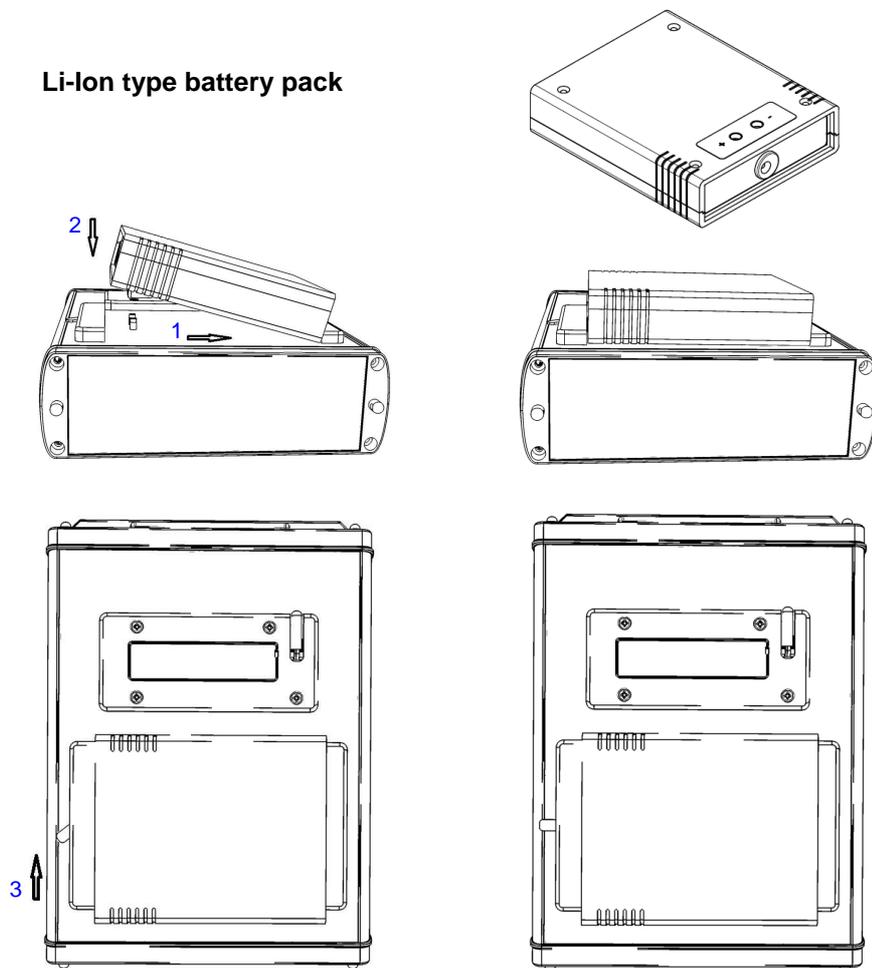
Abdominal, sector probe
5,0 MHz (3-7 MHz),
scanning angle 90°.

3. Batteries

Specially configured Li-Ion type batteries create an enclosed pack with its own thermal fuse protecting against overheat while charging.

In the pack casing, there is a socket for connecting a charger cable as well as special holes with contacts used to connect the ultrasound scanner with electric power supply. During operation, the pack is attached to the bottom of the device with a special attachment system with a lock.

Li-Ion type battery pack



Connecting the battery.

Batteries are expected to last for 500 charging cycles. Owing to the use of modern, high capacity batteries (3.1Ah), it's possible to work up to 4 hours with one battery.

Precautions for dealing with the Li-Ion battery pack are described further in the manual in the BATTERY CHARGING section.

5. Charger

For charging batteries use an appropriately adapted charger powered by a 110-240V/ 60Hz power supply and equipped in cables and a coloured diode signalling the charging status.

Attention: To charge the pack use only an original charger delivered with the ultrasound scanner.

For more details concerning pack charging procedure and the use of the charger see "Battery charging" section.



Membrane keyboard and button layout

The keyboard buttons are placed in its upper part to allow for operating the ultrasound scanner with a left or right hand. A double function was assigned to most buttons to enable both access to various options as well as easier and faster setting of image parameters (the so called fast access). Functions of individual buttons are presented further in this manual.



- 1 Power button (turn on / turn off – hold longer) with an additional function to freeze and enable imaging
- 2 A button opening menu for saving or loading images and cine loops in the device's memory as well as saving them on a pendrive type external memory.
- 3 G1 – signal near field gain level setting
- 4 G1 – signal far field gain level setting
- 5 ESC – escaping the menu and withdrawing from the change in parameter settings

- 6** OK/MENU - 1. opening the main menu and accepting the selected option or settings
2. approving the position of the marker while dimensioning

7 ◀▶ **8** ▲▼ navigation keys are assigned to the following operations:

- = ◀▶/▲▼ navigating the menu and setting parameter values
- = ▲▼ "Cineloop" function automatic fast-forward and rewind option after freezing the image
- = ◀▶ "Cineloop" function crolling frame by frame after freezing the image.
- = ◀▶/▲▼ setting markers while dimensioning
- = ◀▶/▲▼ selection of symbols when describing images or cine loops before saving them in the memory
- = ▲▼ setting the focus indicator at the optimum depth (with a closed menu)
- = ◀▶ setting the depth of scanning (with a closed menu)
- = ◀▶ marking selected images and cine loops to send them to external storage

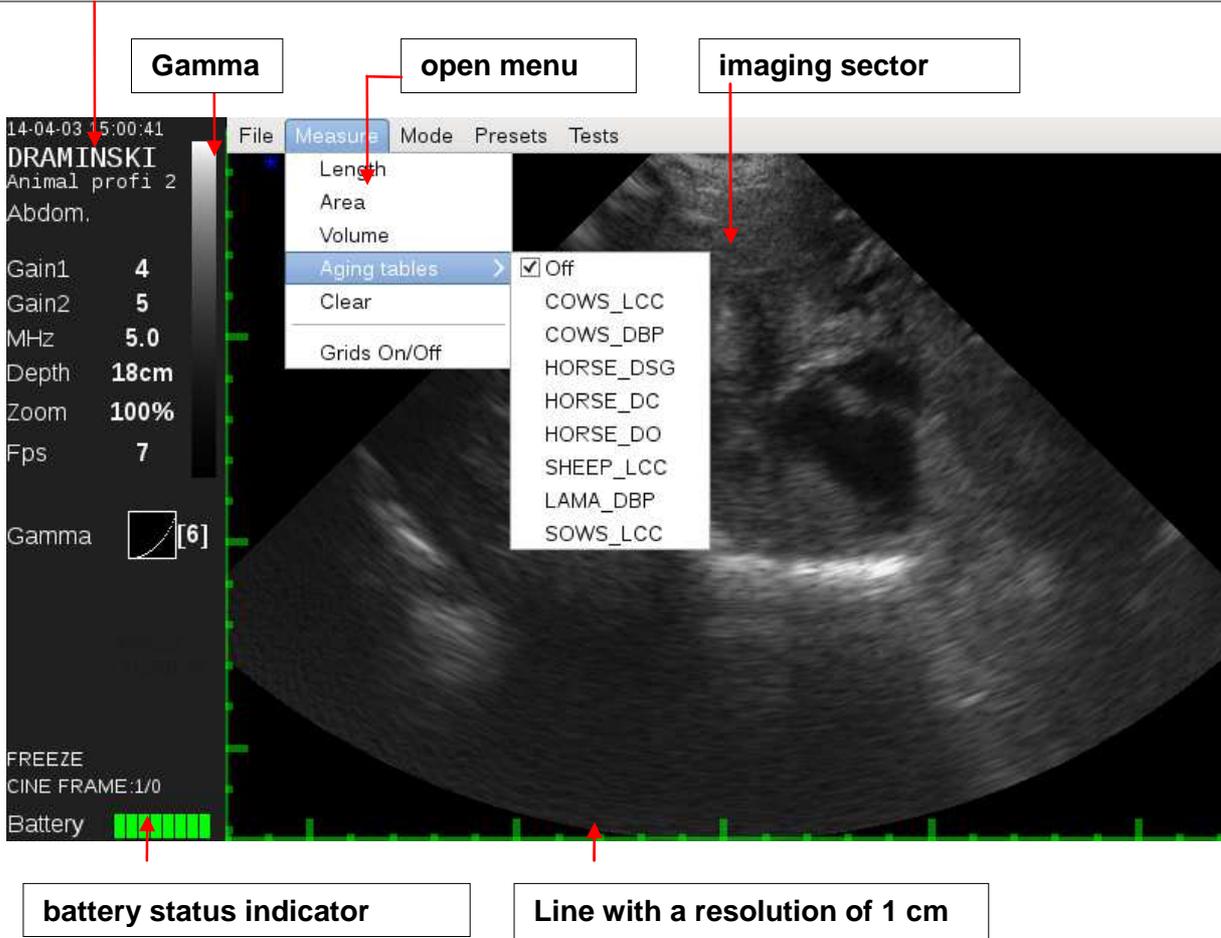
9 Image freeze and imaging enable function.

Monitor view

Messages and information shown on the screen while working with the device.

An example of a **Animal profi 2** screenshot with a frozen image and description of messages and displayed information:

Information bar showing current settings: date and time, type of probe, level of G1 and G2 gains, set probe frequency, scanning range, zoom, refreshing (Fps), focus, Gamma level, image freeze, battery status, measurement results



III. Preparing the device for operation

Connecting the probe.

Note! Probe connector must be protected from mechanical damage, dirt and humidity.

Probe cable must be protected from excessive loads, strong multiple folding and pulling.

After proper plugging the round connector of the probe into the socket in the housing, it should be tightened, holding the metal part, to provide full and correct contact of the probe connector with the socket in the housing.

DRAMÍŃSKI Animal profi 2 ultrasound scanner is fitted with a single multi pin connector for connecting the probes.

Note! The probe replacement must be carried out at the unit switched off.

In order to change the probe, unscrew and remove the connector, and then plug the new one and re-tighten the connector.

The connected head is automatically recognized by the system and the imaging sector will change according to the type of the connected head.



View of the head connector correctly screwed

IV. The menu structure

Rules for navigating the menu

The Animal profi 2 ultrasound scanner's menu comprises two blocks, i.e. the main menu and the additional menu, each having several positions with a drop-down list of options. To navigate individual menu options, navigation buttons are used: ◀ ▶ ▲ ▼

Selected position or option will be marked (backlit) with a blue background.

To confirm the choice of a menu option, use "OK" button. To cancel the selected option, use "ESC" button.

In some options messages (hints) are displayed, suggesting which buttons may be used to set or change a selected parameter.

Main menu is opened with the use of  button. The menu has several positions with drop-down lists and enables the user to set the following parameters in various options:

Settings Mode Presets Help

- MHz
- Range
- Gamma
- Zoom
- Negative
- Averaging
- Postprocessing
- Full screen
- System >**

in the **System** option the following parameters may be adjusted:

Settings **Mode** Presets Help

- B mode
- B+B mode
- B+M mode

- Switch left/right/
- Date / Time
- Brightness
- Language
- Factory settings
- Automatic power off
- Presets >**

Settings Mode Presets **Help**

- About the program

Settings Mode **Presets** Help

- Preset 1
- Preset 2
- Preset 3
- Preset 4
- Preset 5

Additional menu opened with the  button makes it possible to manage images and image sequences (cine loop), i.e. saving, loading, transferring via USB, deleting and dimensioning. (besides this menu provides access to the imaging mode selection position).

File Measurements Mode Presets

Save image
Load image

Save cine
Load cine

File Measurements Mode Presets

Distance
Surface area
Volume
Age tables >
Clear

Turn on/off grid

Backfat

File Measurements Mode Presets

B mode
B+B mode
B+M mode

File Measurements Mode Presets

Preset 1
Preset 2
Preset 3
Preset 4
Preset 5

In the measurement position, age tables are available, allowing for estimating the age of foetus in various animal species based on properly taken measurements listed below:

- Disable**

 - Cow_LCC
 - Cow_DBP
 - Horse_DSG
 - Horse_DO
 - Sheep_LCC
 - Lama_DBP
 - Pig_LCC

Age of a foetus for the marked species and type of measurement is displayed on the information bar next to measurement results.

V. Most frequently used functions

The table below shows basic functions that are used most frequently when working with the ultrasound scanner as well as keyboard buttons to activate them:

<p>Turn on/off the scanner and image freeze</p>		<p>The ultrasound scanner is switched on by pressing the ON/OFF button. When the ON/OFF button is pressed for 2 seconds the device switches off. Freezing and unfreezing of the image during the test starts with a short press of one of these two buttons. Image is stopped and on the information bar word FREEZE appears</p>
<p>Gain control</p>		<p>Signal gain control. Gain 1 button = near field gain. After pressing G1, the level is regulated with the use of navigation buttons that remain active for 2 seconds. Gain 2 button = far field gain. After pressing G2, the level is regulated with the use of navigation buttons that remain active for 2 seconds.</p>
<p>Scope - changing depth of penetration</p>		<p>The scope of penetration is set with the use of navigation buttons ↕ These parameters are adjusted to achieve an optimum image quality depending on the type of examination and type of probe. The value of the set scope is displayed on the information bar.</p>
<p>MHz - filtering the signal from transducers</p>		<p>The level of MHz (quick access) is set with the help of navigation buttons, when the Menu is switched off. The head has broadband transducers, and this function enables filtration of their signal within the range between 3.0 MHz and 7.0 MHz. This option is also available in MENU / MHz (frequency). The value of the set parameter is indicated in the information bar.</p>
<p>GAMMA</p>		<p>MENU / GAMMA. This function enables adjustment within a wide range of greyscale level to optimize the image during examination</p>
<p>Zoom - enlargement</p>		<p>MENU / Enlargement (zoom). Percentage enlargement (or reduction) of a standard 100% by leaps within the range from – 60% to +200%.</p>

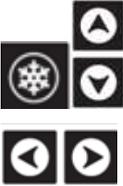
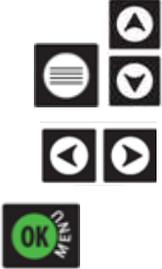
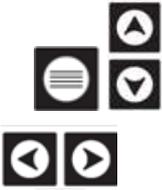
<p>Cineloop</p>		<p>The function allowing for displaying the maximum 256 of the recent frames from the moment the image is frozen. By using the navigation buttons, the user may scroll manually frame by frame the sequences of the completed examination or may automatically play forward or backwards cine loop by using the buttons.</p>
<p>Dimensioning</p>		<p>ADDITIONAL MENU / MEASUREMENTS/ When the image is frozen the user may measure the images with the use of navigation buttons, setting the markers and confirming their position with the OK button. There is also the option to turn on and off the grid in this menu.</p>
<p>B+B Mode</p>		<p>MENU / MODE. Dividing the monitor into two sections (B+B Mode) to allow for comparing the frozen image with the one which is currently being scanned.</p> <p>ESC – fast access. Holding the button for about 1 second results in quick start-up of the B+B mode. You can come back to the B –Mode by holding the ESC button again.</p>
<p>Saving images and cine loops</p>		<p>ADDITIONAL MENU / Save image / Save cine. This function allows for saving the image or cine loop comprising the maximum of 256 frames in the device's memory.</p>
<p>Loading images and cine loops to the monitor and managing images</p>		<p>ADDITIONAL MENU / Load image / Load cine. This function allows for loading to the monitor the images or cine loops recorded in the memory from the list with a preview of miniatures.</p> <p>Loaded images or cine loops may be sent to the external storage media.</p>

Image freeze

This is the basic function used when examining animals. To freeze the image the user should press one of the buttons:



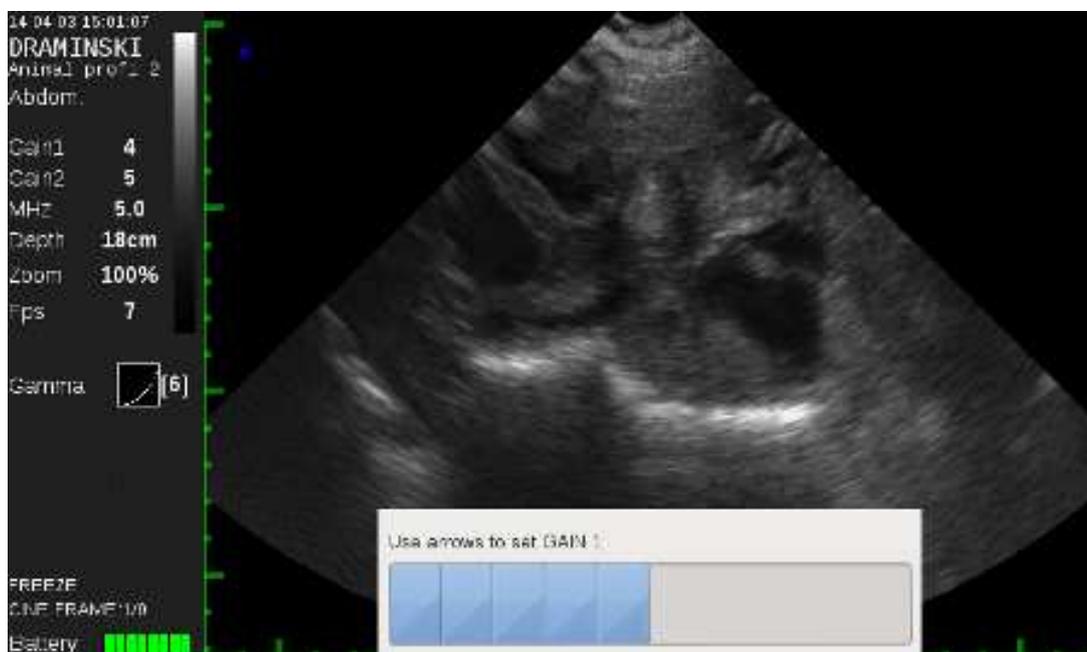
The message FREEZE will appear at the bottom of the information bar. Pressing one of the above buttons again will immediately activate imaging.

Freezing enables the user to continue image management activities (e.g. saving, dimensioning).

Gain control

During the near (G1) and far (G2) field gain control, at the bottom of the screen a graphic indication of the level appears, which will automatically disappear after 2 seconds or after confirming the setting with OK button. The current setting for Gain 1 and Gain 2 is shown on the information bar at the side of the imaging sector.

The level of signal gain is controlled in order to optimize the legibility and diagnostic quality of the image depending on the type of examination carried out, animal species and examination conditions.



Example of a screen with gain control

Scope - adjusting depth of penetration

The scope of penetration is set in a very easy and fast manner - with the use of navigation buttons ◀ ▶ . This is the function used very often during examination.

Depth of penetration is adjusted to achieve optimum image parameters depending on the animal species, type of examination and type of probe. The value of the set scope is displayed on the information bar. At the bottom of the screen and at the side of the imaging sector a line with a resolution of 1 cm is displayed, which automatically adjusts its scale settings with any change in the depth of scanning.

The scope of penetration may be set from the option available in the Main menu/Settings.

MHz – setting the head frequency

Animal profi 2 ultrasound scanner cooperates with broadband (multifrequency) probes. The signal frequency can be changed through the options in the menu or in a simple, fast way using the navigation buttons ◀ ▶ .

You can also set the level of MHz by selecting this option in the menu.

Information about the currently set frequency in MHz is given in the information bar.

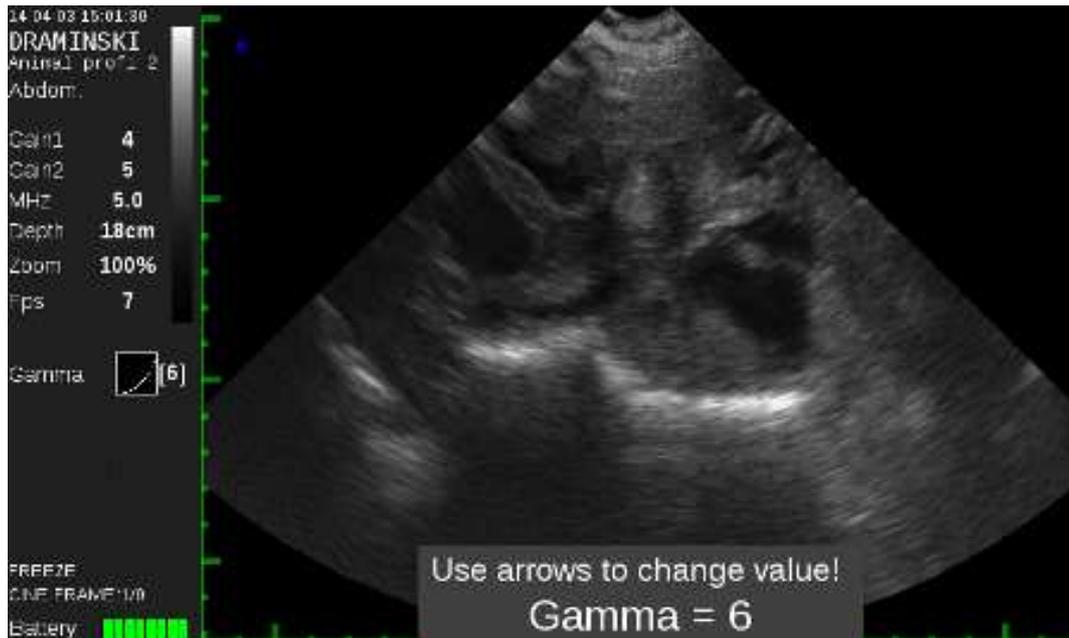
Gamma – greyscale adjustment

The level of signal gain is controlled in order to optimize the diagnostic quality of the image depending on the type of examination carried out, animal species and examination conditions.

This option allows for changing the image features as far as contrast and brightness are concerned - gamma adjustment. At the top of the screen, on the information bar, greyscale is shown in a graphic form - as a vertical Gamma curve column. Moreover, numerical value of the gamma level is shown on the information bar together with an additional graphical indication (square).

Gamma adjustment is possible in real time during the scanning process as well as after freezing or loading a saved image and cine loop to the screen.

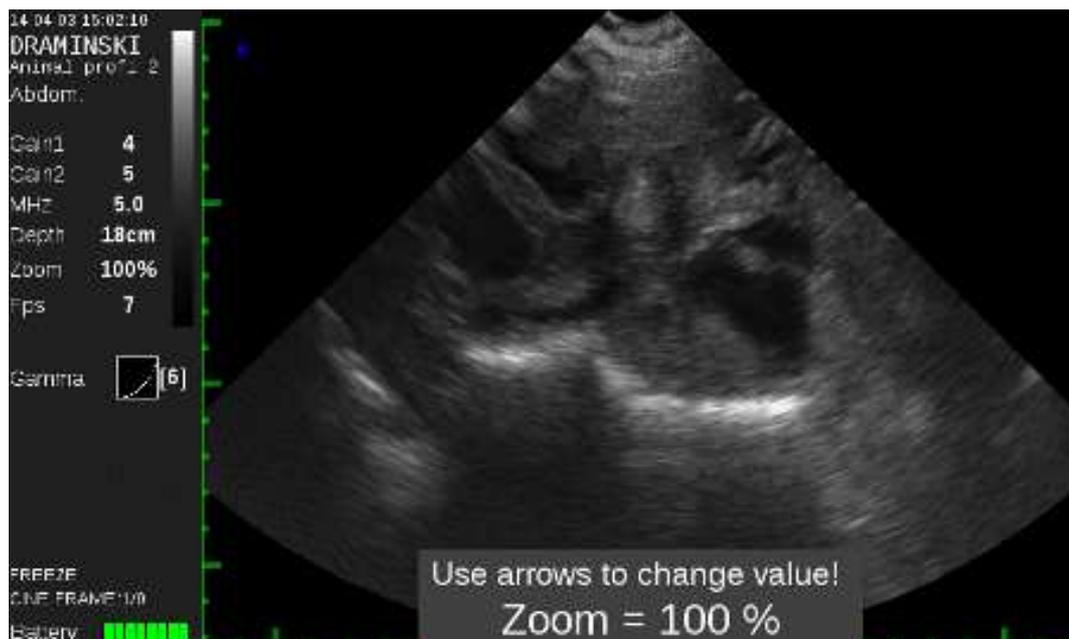
To change the gamma level after selecting this option from the main menu, a dialogue box will be displayed. The user should then use navigation buttons and confirm the setting with OK button.



Example of a screen with gamma level adjustment

Zoom (enlargement)

During active imaging or freezing, 100% of the image size may be enlarged (or reduced) within the range from – 60% to + 200%. At the bottom of the screen a message box appear informing about the set enlargement, which will automatically disappear after 2 seconds or after confirming the setting with OK button. Information on the value of the currently set zoom is provided on the information bar.



Example of a screen with zoom level adjustment

Negative

Image presentation option in reverse greyscale. This option is used less frequently.

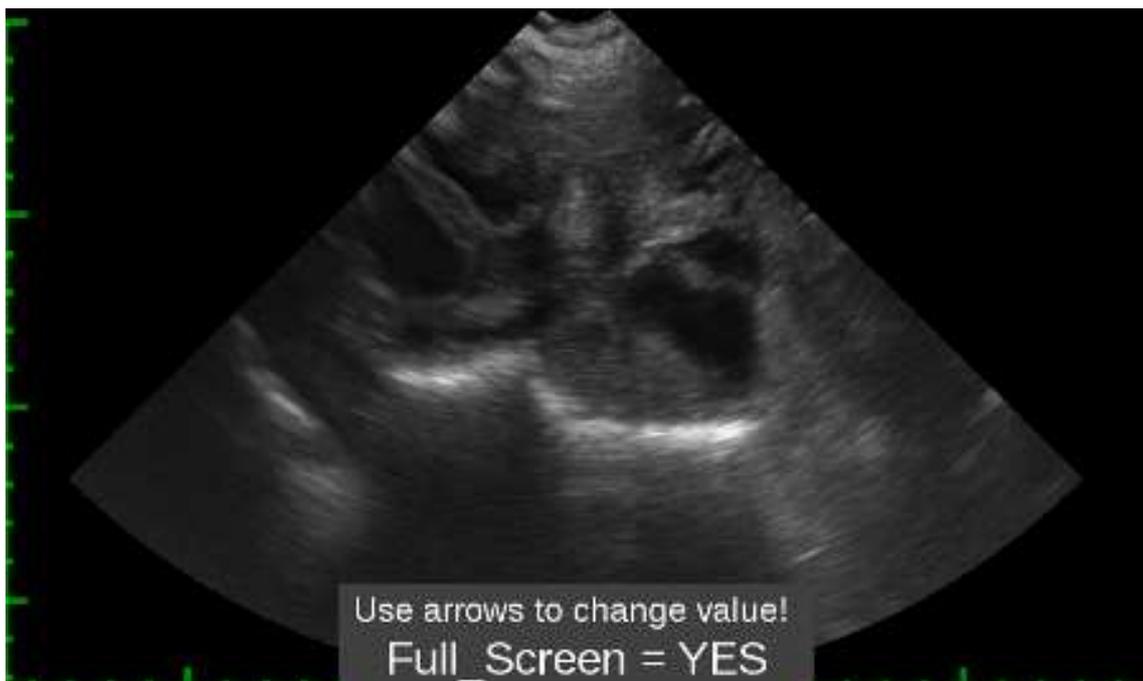
Postprocessing – digital image processing

The Animal profi 2 ultrasound scanner is a miniaturized, yet a technologically advanced device. To optimize the quality of image and improve its diagnostic value, the user may choose the option of real time digital processing of displayed or frozen images or images and cine loops loaded from the memory.

The postprocessing option may be disabled or enabled any time from the Main menu level – the option is available on the list and confirming the message "Postprocessing=Yes" or "No" in the dialogue box.

Full screen

By choosing this option and confirming it with OK button the user may close the information bar and display the image sector in full screen.



Full screen view

System

The option in the Main menu which enables setting additional available parameters that are used less frequently:

Switch left/right/
Date / Time
Brightness
Language
Factory settings
Automatic power off
Presets save

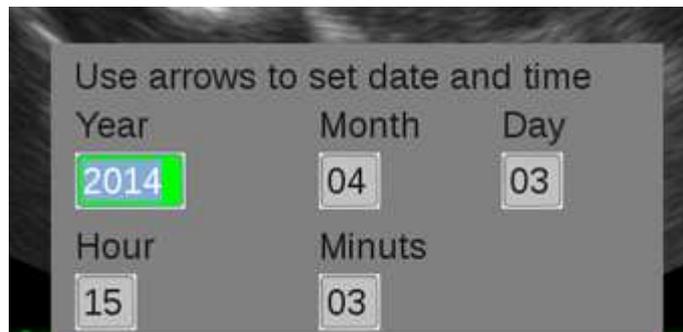
Switch left/right/

This option allows for changing the image displayed from the head to the right or left hand side to adjust it to the actual side being scanned. It's particularly important in the case of examination with the use of a rectal probe carried out by right or left-handed users.

Date and time settings

This option enables to update date and time in accordance with the user's calendar.

After selecting this option a dialogue box appears, in which date and time fields are set one after another. After confirming one field the user automatically moves to the next field.



Dialogue box for setting time and date

Brightness

This option is used to adjust monitor brightness. It should be noted that the level of brightness has an impact on battery life. The scope of adjustment is between 10% and 100%.

Language

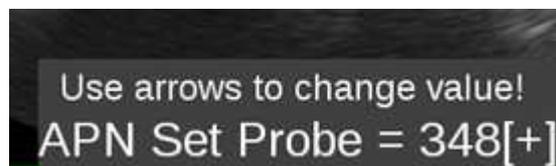
After selecting this option a box with available language options is displayed.

After choosing a language and pressing OK the system automatically switches into the selected language version.

Set the head

It is very rarely used option. It is performed at the service workshop or in the event that mechanical displacement of the head index happens, for example, after a strong blow or fall to the ground.

A typical symptom of the displaced index is a slightly blurred image. After selecting this option a dialog box will be displayed that allows you to set a numerical value (index) stabilizing the image from the probe to the maximum extent. After stabilization of the probe image the displayed value should be confirmed with "OK".



Factory settings

This option allows for restoring average settings for individual image parameters if they are significantly deregulated by the user and it is necessary to quickly restore average parameters. After selecting this option a dialogue box with available YES / NO options will be displayed. If YES is selected, the system will be restarted with active factory settings.

Automatic power off

This option allows for setting the time after which the system will power off automatically: **never, 5 min., 15 min., 30 min. 60 min.** 60 seconds before automatic power off, the following message will be displayed on the screen: "**Auto power OFF, 60 seconds**" and the system will start a count down. The message will disappear after pressing any button and the system will count down the set time again.

Presets

An option which allows the user to save the optimum device settings.

The user can save the most appropriate settings in the device's memory. To do this, select the Presets option from the menu, then Save Preset and confirm with OK button and with the use of arrows, ▲▼ then ◀▶ name the setting and confirm with OK button. The name of the currently used preset will appear at the top of the screen. After turning the

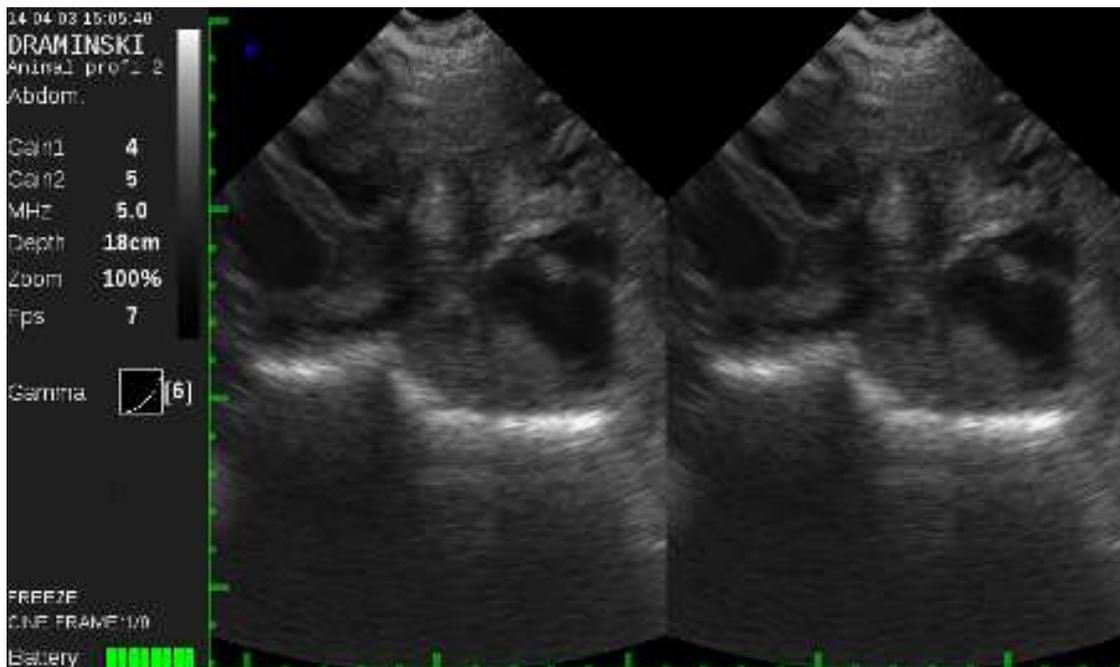
ultrasound scanner off and then restarting it, the selected preset does not change. Every modification of parameter results in exiting the preset and the preset name will not be displayed.

B+B mode

Attention! ESC – fast access. Holding the button for about 1 second results in quick start-up of the B+B mode. You can come back to the standard B-Mode by holding the ESC button again.

The B+B mode may also be enabled by selecting an option from the menu.

This option enables the user to compare two images displayed at the same time. After enabling the B+B mode the screen will be divided into two parts - the left and the right one - and the image will be frozen and transferred to the right window. Dividing the monitor in the B+B Mode enables the user to compare the frozen image with the one which is currently being scanned.



Example of a screen with enabled B+B mode

Switching windows in B+B mode.

To move the currently observed image to the right window to the frozen image field the user should quickly press the **ESC** button. Pressing this button in the B+B mode will always cause moving the image to the right-hand side. Enabling the B+B mode during examination

will immediately freeze the moved image. To unfreeze the image in an active window, use "Freeze" buttons.

B+M mode

This imaging mode reflects the movement of individual structures and tissues as a function of time with simultaneously integrated B image. It may be used to assess fast-moving structures. Two images are simultaneously displayed on the screen. One of the images is a B Mode presentation, and the other shows image changes of the B Mode image as a function of time.

This mode is selected from the Main menu's option "Mode".

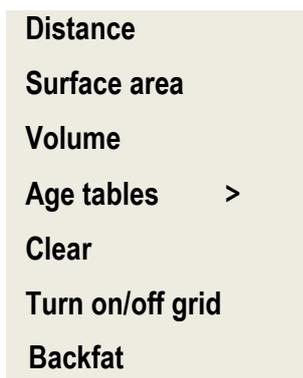
Cine- loop

The 4 Vet mini ultrasound scanner is equipped with a very useful function which gives an opportunity to watch the results immediately upon completing the examination. The cine loop option allows for displaying the maximum of 256 last frames displayed before the image was frozen.

By using the ◀▶ , ▲▼ navigation buttons, the user may scroll frame by frame the sequences of the completed examination or may automatically play forward or backwards cine loop by using the buttons (maximum of 256 frames, i.e. 20 seconds of examination).

Measurements

After freezing the image, diagnosed objects may be measured. This position is available in the additional menu which includes a list of available measurement options:



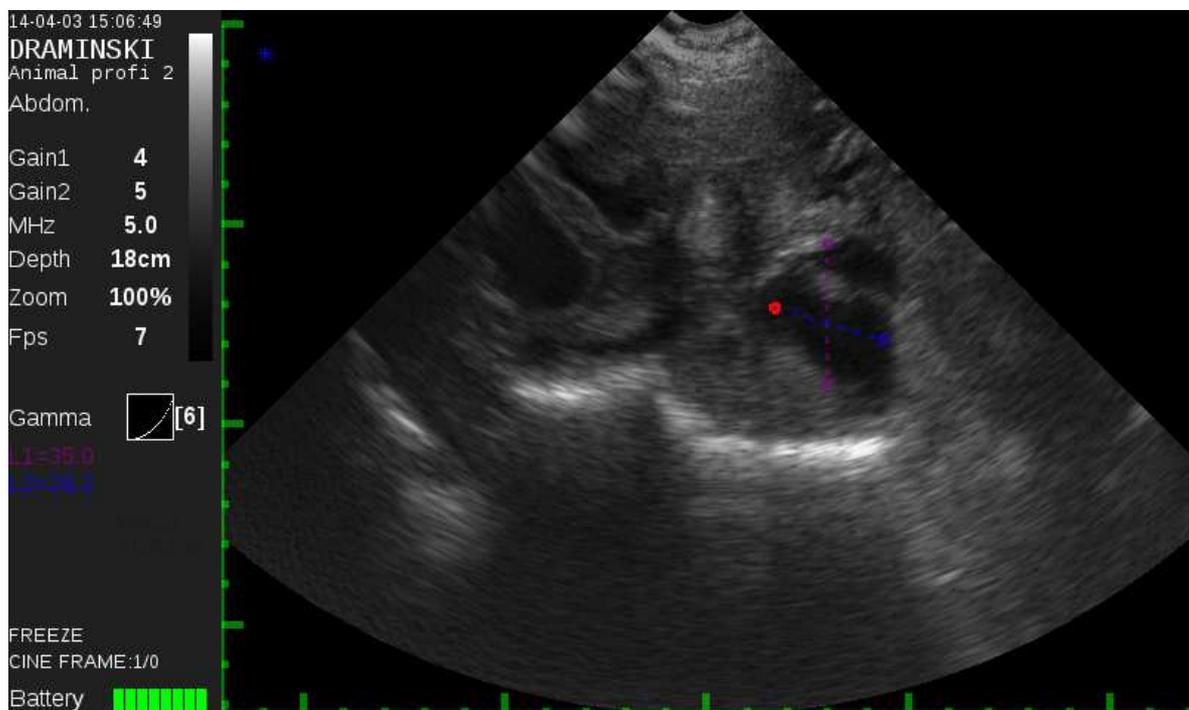
Measurements – Distance

After selecting this option, a red marker appears on the image, which can be moved and set with the use of navigation buttons:◀▶ , ▲▼ .

Position of the marker is confirmed with the "OK" button. When position is confirmed, another red marker appears, which can be set in an appropriate place to measure the distance between a pair of markers. After pressing OK a new cursor appears and the distance between another pair can be measured.

Cursors may be moved by pressing navigation buttons just once or holding them for a longer time, especially when the cursor must be moved further away.

The user may take 4 measurements from one image. Each measurement is marked with a different colour. On the information bar, at the bottom, there are values for individual distances provided in mm.



Example of a screen with measurements taken (measurement results are shown at the bottom of the information bar)

Measurements - Surface

After selecting this option, a red marker appears on the image and all activities are carried out in the same way as when measuring the distance. To automatically calculate the surface area, two measurements must be taken, being the width and height of the object. The result is displayed in square cm on the information bar.

Measurements - Volume

After selecting this option, a red marker appears on the image and all activities are carried out in the same way as when measuring the distance. or the surface area, but to calculate the volume, three measurements must be taken (height, width and depth of the object). The

most comfortable method of measuring the volume is using the B+B mode and taking relevant measures on a frozen image.

Measurements – Age tables (foetus age)

After selecting this option and checking the animal type and species from the available list, the additionally calculated foetus age will be displayed on the information bar, expressed in days. For some age calculations two foetus measurements will be required.

To disable the age view the user should select and confirm "Disable" option from the list.

Measurements – Clear

Selecting this option will clear the screen from any measurements taken so far. This operation is carried out to finish the dimensioning process. Additionally, measurement results may be quickly cleared by pressing the "ESC" button. Also, measurements will be cleared upon unfreezing the image.

Measurements – Enable/disable grid

After choosing this option and confirming it with OK button a grid will be placed on the image sector to allow for approximate dimensioning of objects. The grid's resolution is 1.0 cm and adjusts its scale automatically when scanning depth is changed or when enlargement is applied (zoom).

Viewfinder. Option of approximate dimensioning with help placed on the image scale with the resolution of 1mm.



Example of an image with a displayed grid and viewfinder

Measurements – backfat

This option enables automatic measurement of fat thickness. After choosing this option and confirming it with OK button, freeze the image and hold down for few seconds menu button (☰). The line will appear on the screen. If necessary it can be moved to the appropriate level by using the navigation buttons ▲▼. The result given in millimeters is automatically displayed on the left side of the screen (on the info bar).

Additional menu - managing images and cine (saving in the memory and loading onto the screen, searching, sending to the pendrive and cancelling images and cine loops)

After freezing the user may save in the memory a single image or the entire sequence of 256 frames as well as load onto the screen already recorded images and cine loops.

Such options are available on the Additional menu list, opened with the  button. The list contains several positions: Save image / Load image / Save cine / Load cine.

Save image/cine

To save the image or cine in the memory the user must select the right option and confirm it with OK button. The image (cine) will be automatically saved on the list under the ordinal number, and the message about this number will be displayed shortly after completing the saving procedure. (saving the sequence of 256 frames takes about 5 seconds).

The memory of the ultrasound scanner may store 200 images and 200 full cine loops.

Attention! if necessary, a few or more images can be saved from one cine loop.

Creating a description for an image or cine loop.

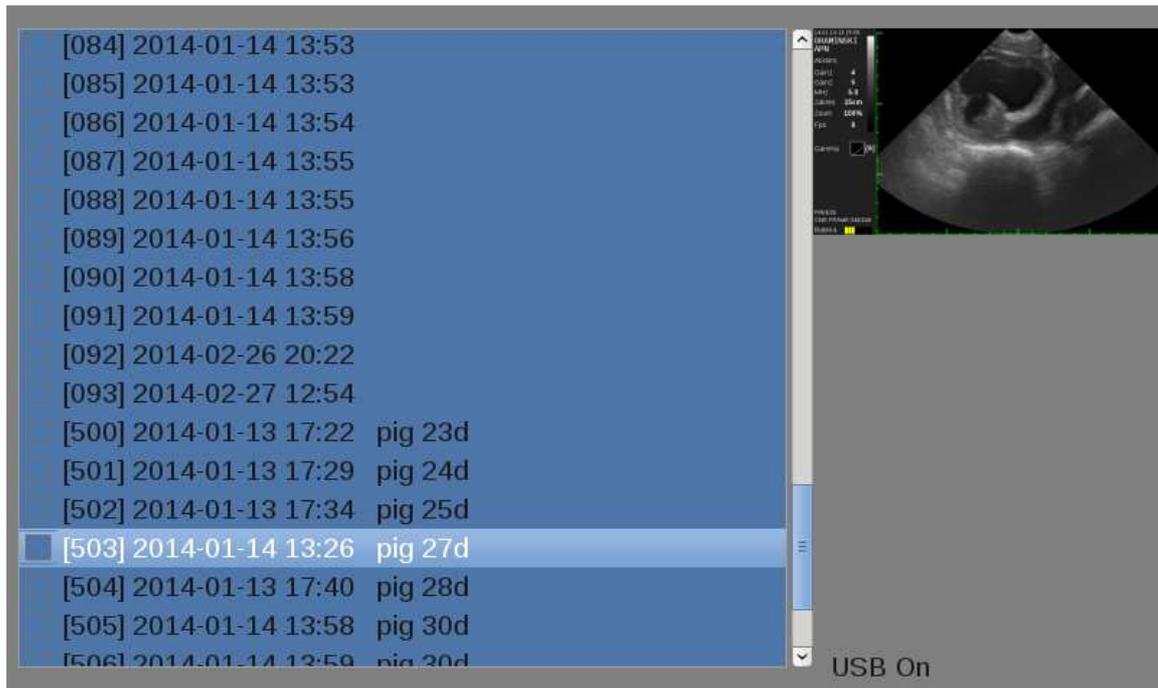
When saving, it is possible to add a description to the image. The system will display a dialogue box with available choices. In the description field, individual digits or letters are entered with the use of navigation buttons: ▲▼, ◀▶. The maximum of 30 signs may be entered). The process of describing is completed upon pressing the OK button and saving the image or cine in the memory together with the date, time and description.



Load image/cine

To load the image or cine saved in the memory it is enough to open the Load image /Load cine option. Next, the user should check and confirm the appropriate position from the list by pressing OK. The list contains basic data concerning the image, such as date of saving and a preview in the form of a miniature highlighted position).

After loading a cine loop onto a screen the user may scroll frames or frame sequences forward and backwards with the use of navigation buttons.



Screen view with the list of saved images or cine loops and a preview to a checked image

Searching for images and cine loops from the list

Images and cine loops saved in the memory and included in the list may be searched by providing a string of signs, on condition that such a description was created during the saving procedure.

Search option is opened from the Additional menu by selecting Load image or Load cine.

After opening a selected list, press the Additional menu button  again. A list of options will be displayed on the screen, including the "Search" option. After selecting and confirming this position, a window for entering the searched string of signs will appear. Individual signs are introduced in the same way as when creating a description, that is with the use of navigation buttons.

Sending images and cine loops to an external drive and deleting them

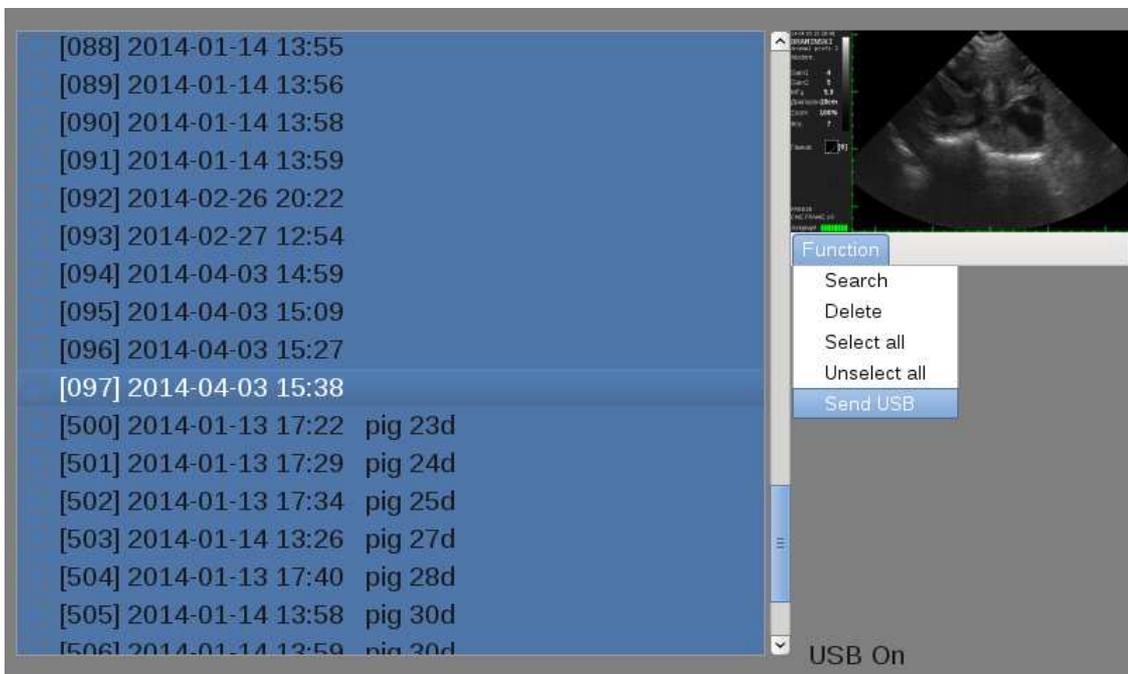
Images stored and specified in the list and cine loops can be sent to an external disk. For this purpose, it is necessary to connect (screw) an adapter to the micro USB port located on the side wall of the housing, and insert the external data carrier of the pen-drive type to the USB port



USB 2.0 adapter for connecting external storage carrier of a pen-drive type

Images and cine loops saved in the memory and included in the list may be sent to the external disc (pendrive). For this purpose, an external carrier should be attached to the USB micro connector located on the side of the casing (the message "USB On" will appear on the bottom of the screen). From the list of images (cine) displayed after selecting the option "Load image" ("Load cine"), select and check the highlighted position by using navigation buttons ▲▼, ◀▶ .

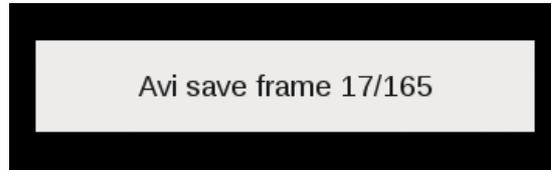
Then press the button ☰ to open an additional menu, which includes several functions which enable the user to carry out several operations, including "Send to USB". After selecting this position and confirming with OK button, checked positions will be sent to the external memory carrier.



Screen view with checked images or cines ready to be sent to an external storage

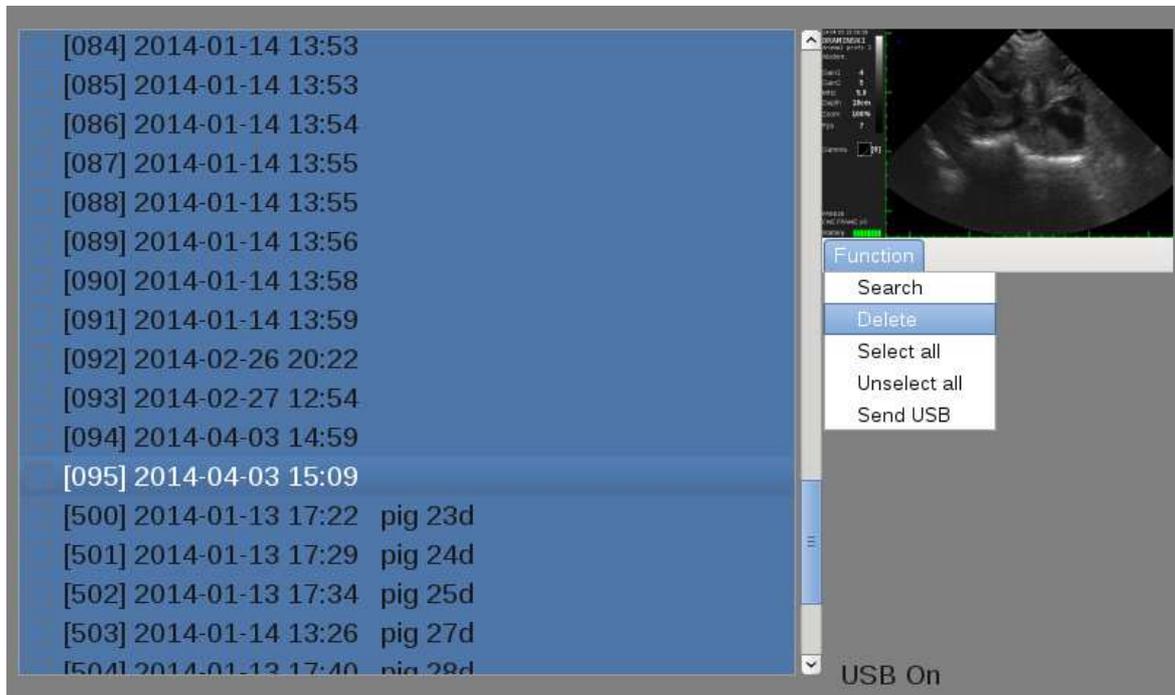
After confirming the operation "Send to USB" data will be sent and a message will be displayed in the centre of the screen, informing about the transfer status. (in the case of a

cine loop it will be a number of the frame recompiled to the Avi form and being currently sent).



Delete image/cine

Images and cines that are saved in the memory and listed may be deleted any time. To cancel elements from the list, the user prepares them in a similar way as when sending them.



Screen view with checked images or cines ready to be deleted from the memory

After selecting elements and choosing the "Delete" option, the user will be warned against final deletion in an additional message which requires a conscious action, i.e. selecting and confirming an appropriate message.



Confirming the choice by pressing YES will result in final deletion of elements marked in the list and saved in the memory

VI. Technical data

application	veterinary ultrasound diagnostics
imaging modes	black and white imaging B, B+B, B+M
image management	<ul style="list-style-type: none"> -Freeze (image freezing) -Zoom 60 - 200% of output image at a 20% interval -Full screen function -Saving images in the memory and cine loop (256 frames) -Loading images and cine loops from the memory to the monitor -Dimensioning (distance, surface, volume, foetus age tables)
monitor	7.0" LCD LED display
function control	membrane keyboard
image and cine-loop storage	memory capacity for the minimum of 200 images and 200 cine loops including the date and description
image transmission	to an external carrier via a micro USB 2.0 connector
type of compatible heads	sectorial, mechanical, multifrequency
source of power	external Li-Ion, 14.4V, 3.1Ah battery pack
continuous operation time when battery powered	4 hours and 30 minutes - with one fully charged pack
charging time of one pack	about 2.5 hours (charger type 2541 LI)
battery wear out indicator	graphical indication – colour-coded and an audio signal before automatic power off.
external dimensions	23 cm x 17 cm x 6,0 cm
weight	1530 g without probe and battery pack
battery weight	280 g
operating temperature	-15 °C to +45 °C
storage temperature	0 °C to +45 °C
electricity consumption	about 0,71 A

Attention! If storage temperature happens to have fallen below 5°C, the head should be warmed up before turning the device on. Using Dramiński Animal profi 2 interchangeably in extreme temperatures has an adverse effect and may cause damage.

VII. Charging batteries

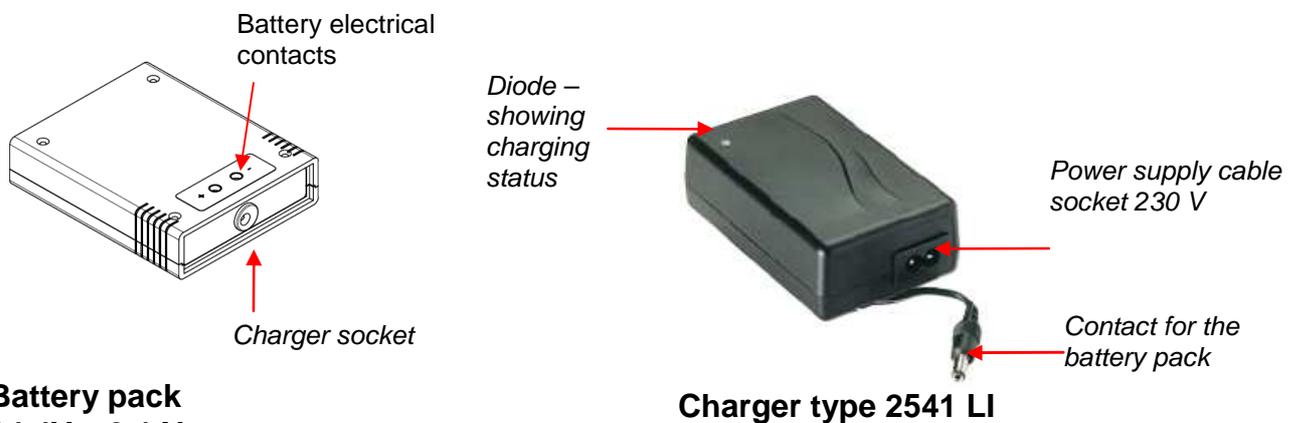
The Li-Ion battery is a rechargeable pack. Battery life depends on the manner of use. Ideally, it should work in full cycles, i.e. fully charged - fully discharged.

DRAMIŃSKI BATTERY PACK batteries are expected to last for about 500 charging cycles. Owing to the use of high capacity batteries, it's possible to work long hours with one battery. (over 4 hours).

At the bottom of the screen, Dрамиński Animal profi 2 has a graphic indication of battery status. When the indicator is shortened or changes from green to yellow, it means that the battery will be discharged in about 1.5 hours. When the colour changes from yellow to red, it means that the battery will work for about 10 minutes. If the device is still switched on, the pack will be fully discharged, a message will appear in the middle of the screen, and the device will turn off automatically.

Charging DRAMIŃSKI BATTERY PACKS (3.1Ah)

To charge the battery pack a special charger should be used, which guarantees proper charging of packs.



Battery pack
14.4V, 3.1Ah

Charger type 2541 LI

To charge the battery pack follow the activities described below:

- turn off the power (ON/OFF) of the ultrasound scanner,
- connect the charger cable to the pack slot,
- connect the charger to a 230 V / 50 Hz socket,
- observe the diode on the charger – if the colour changes from red (with a largely discharged pack) to green, the battery is fully charged.

Charging a fully discharged battery takes about 2 hours and 30 minutes. When fully loaded, the charger stops charging automatically and the signalling diode turns green.



Warning! - The charger must not be repaired independently by users and disassembled by unauthorised persons. The battery pack should be charged only with the use of the charger supplied by the manufacturer.

With regard to the user's safety and durability of the device, the charger must not be used in humid or wet places.

Before using the charger always check if its main elements, including cables, are not damaged.

Should any damage be identified, immediately disconnect the device from the power source and replace the damaged part with a new one by contacting an authorised service centre.

Attention! A charger is an auxiliary device used solely for the purpose of battery charging. It is not an integral part of DRAMIŃSKI Animal profi 2 ultrasound scanner, used during operation of the device.

Attention!

Connecting the charger to the pack attached to the ultrasound scanner causes automatic disconnection from the power source and makes examination impossible.

Precautions for dealing with the Li-Ion battery pack

- Battery packs which form an integral part must not be disassembled.
- Contacts on the pack casing must not be connected with metal objects.
- Battery packs must not be thrown into the fire or heated up.
- Mechanical packs must not be impacted in any way or thrown.
- If an electrolyte leaks from the pack it, the user must immediately refrain from using the pack.
- Do not allow any liquid to permeate into the pack, which may result in a sudden increase in the battery temperature and cause danger.
- The battery pack must not be used or stored in high temperature, e.g. inside a car, directly in the sun, close to heat sources. Failure to comply with these rules may cause the electrolyte to leak from the battery and damage it or reduce its operating life.
- The battery must be charged in the ambient temperature of 0 °C to 40 °C. Charging the battery in an ambient temperature different from the one provided above may cause danger and permanent damage of the pack.
- If, after a long-term use (about 500 cycles), problems with charging occur, the battery pack should be replaced.
- An old battery pack should be recycled in accordance with currently enforced regulations.

VIII. Operational and technical comments

Prepare the device and accessories before starting the work.

- Turn the power on and check if low battery is signalled.
- There is a special micro-valve implemented inside the USB connector for pressure compensation. The connector cap shall be slightly loosen while transport or during normal operation (unscrewed about 0.5 to 1 turn). This way the pressure will automatically compensate inside the scanner. The cap shall be tightened while washing the scanner or while the device may be at risk of the direct contact with water.
- A special gel is necessary to carry out the examination (please use gels recommended for ultrasonography, ideally after making sure that they have special certificates authorising their use). Using other substances may be uncomfortable and ineffective and cause adverse effects. A generous portion of gel improves signal penetration and makes it possible to achieve a proper and clearer image. Before starting work it's good to make sure id there is enough gel for the planned examination.
- Images obtained during the penetration are influenced by a number fo factors, such as the place of applying the head, penetration surface (i.e. the manner of applying the head), amount of gel and, of course, experience and skills of the operator.
- During the examination, a keyboard is used to set the best parameters for operation in specific conditions. Gain control option should be used. The device 'remembers' previously used gain settings for individual scanning depths. A focusing function should be used, which contributes to obtaining more legible results for the examined object.

It is necessary to protect the head of the probe and the cable against physical damage.

Remember:

- To put the cable properly. Improper placement and twisting of the cable leads to its damage.
- To put the probe and the cable properly in the case. Avoid squeezing of the cable by the case's cover. It may cut the wire.
- To keep the probe in a proper and safe place.

Typical symptoms	Actions to check the problem
Power off - the device won't turn off	1. Check if the pack is properly connected. 2. check operation with another pack
Improper image or lack of image	1. check if the head is properly connected and the connector is locked.
Image is too dark or too bright	1. check gain, gamma, MHz settings or enable factory settings
No charging signal in the charger.	1. check connections 2. check power supply
Short battery operating time	1. battery was not fully charged 2. v. low ambient temperature 3. battery is worn (a normal symptom resulting from the battery's construction and rules of using the battery)

If none of the basic actions helps, please contact DRAMIŃSKI S.A. service centre, phone: +48 89 675 26 00 or e-mail: ultrasound@draminski.com

IX. Guarantee

The manufacturer hereby grants the buyer a 24-month guarantee for a trouble-free operation of the product used in accordance with the attached user manual.

The battery for the device has a 6-month guarantee.

In case of any failure occurring at no fault of the user, the manufacturer undertakes to repair the product not later than within working 14 days from the date of receiving the device at the service centre (Wiktora Steffena 21, 11-036 Sząbruk, Poland) and to return the device in good working order at the manufacturer's cost.

The guarantee excludes mechanical damage, damage resulting from improper operation, storage and independent repairs.

The guarantee is processed based on a proof of purchase (invoice). To make a complaint, the user should advise Dramiński S.A. immediately of any suspected fault within a reasonable time from the date of identifying a suspected Product fault, however not later than before the Guarantee expiry date.

To make a claim under the Guarantee the user should submit:

1. Product
2. A copy of the proof of purchase clearly identifying the name and address of the seller, date and place of purchase, type of product and product serial number.

The Guarantor is DRAMIŃSKI S.A.:
Wiktora Steffena 21, 11-036 Sząbruk, Poland
Phone: +48 89 675 26 00
e-mail: serwis@draminski.com
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