

# DOD2

Dog Ovulation Detector



User manual

EN

ISO 9001 | CE

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# INTRODUCTION

One of the basic elements in the organization of animal breeding is the detection of the moment of ovulation. It is of key importance for the effectiveness of female mating (effective mating at the right moment depends to a large extent on this). Searching for a reliable and simple method of ovulation detection, scientists and animal breeders have identified a direct correlation between changes in the electrical resistance of the vaginal mucus and the occurrence of ovulation.

In the course of research on the properties of vaginal mucus, scientists found that the closer to ovulation, the greater the change in electrical resistance. Current knowledge of animal physiology, especially regarding changes in the genital organs during the oestrous cycle, enabled the science to understand the correlation between changes in the ovaries and changes in the electrical resistance of the mucous membrane in the animal's vagina. All the above-mentioned phenomena and the dependence of electrical resistance on ovulation were used in the construction of DRAMIŃSKI DOD2 (Dog Ovulation Detector).

The manufacturer – DRAMIŃSKI S.A. serves the users with its knowledge and at the same time reserves the right to introduce changes and improvements in design and software. DRAMIŃSKI

S.A. also reserves the right to amend the contents of the manual. Read this manual carefully before starting the device. This will guarantee safe, long and reliable operation of the instrument.

The amount of electric current flowing through the measuring electrodes and the electric field produced by this mini-current is completely harmless to animals and humans.

The declaration of conformity of the device is available at the seat of DRAMIŃSKI S.A., Wiktora Steffena 21, 11-036 Sząbruk, Poland.

For more information and always up-to-date data please visit  
**[www.draminski.com](http://www.draminski.com)**  
**[www.dog.draminski.com](http://www.dog.draminski.com)**



Please note that electronic equipment, batteries and accumulators must not be disposed of in standard household waste containers. It is the user's responsibility to dispose of this type of waste to appropriate disposal companies in accordance with the applicable laws and regulations. By ensuring proper disposal, you help to protect the environment.

# EQUIPMENT

## SECTION 1

EN

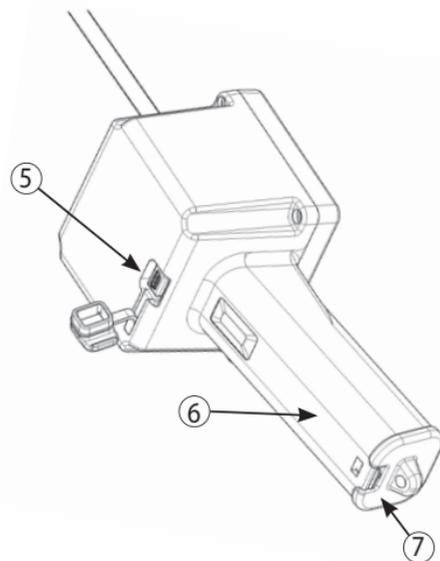
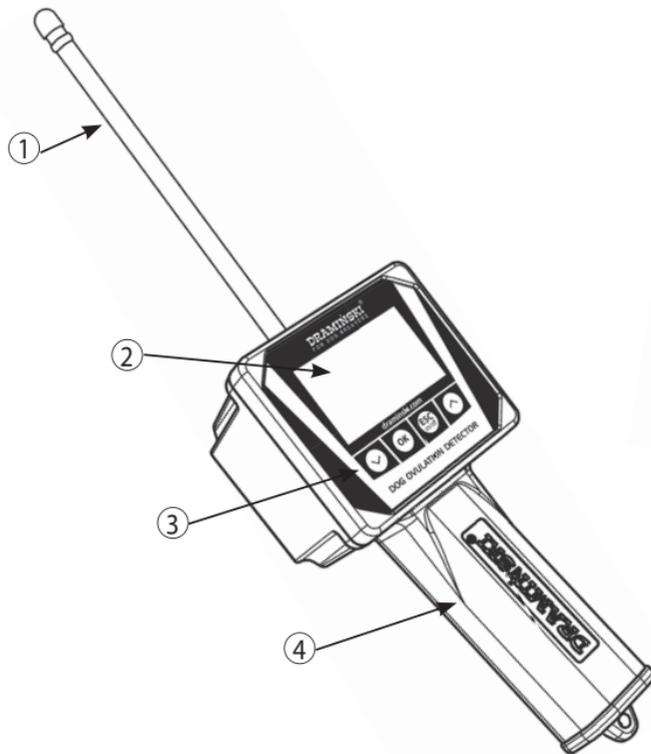


# DESIGN OF THE DEVICE

## SECTION **2**

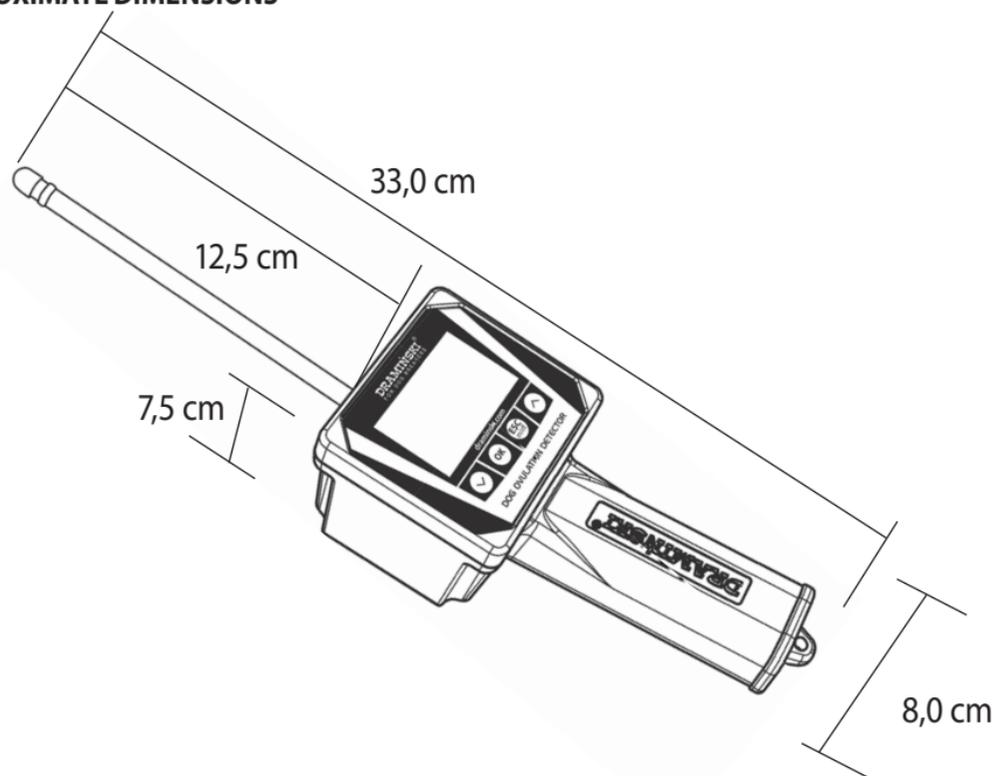
EN

## EXTERNAL DESIGN



1. Probe ended with 2 measuring electrodes.
2. Graphic LCD display with LED backlighting.
3. Membrane keyboard.
4. Housing made of high-quality ABS.
5. Mini USB socket with rubber cover.
6. Compartment for four 1.5 V AA LR6 type batteries.
7. Battery compartment cover.

## APPROXIMATE DIMENSIONS





# KEYBOARD FUNCTIONS

## SECTION **3**

EN



	<ul style="list-style-type: none"> <li>- Turning on the device.</li> <li>- Turning off the device by holding down the key for 5 seconds (NOTE! The dog ovulation detector can also be turned off via the menu by using the <b>"Turn off!"</b> option, and if not in use, it will automatically turn off to save batteries).</li> <li>- Turning on the main menu by holding down the key for 2 seconds.</li> <li>- Cancelling program functions.</li> </ul>
	<ul style="list-style-type: none"> <li>- Accepting program functions.</li> <li>- Start of the measurement.</li> </ul>
	<ul style="list-style-type: none"> <li>- Navigation through the menu.</li> <li>- Setting values in menu options.</li> </ul>
	<ul style="list-style-type: none"> <li>- Turning on the list of animals stored in the device's memory.</li> </ul>
	<ul style="list-style-type: none"> <li>- Saving the result with date and time to the device's memory.</li> </ul>

# STARTING THE DEVICE

## SECTION 4

EN

Dramiński DOD2 will be ready for use if the batteries are correctly inserted in the battery compartment (pay attention to the correct polarity).

Turn on the device with the  key.

a) A welcome message will appear on the display specifying the name of the device, software version and serial number.



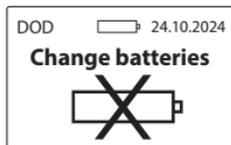
b) Then the device switches to measurement mode. In the upper part of the display the model of the device and the current battery status will appear, in the middle part of the display 3 numbers will appear, 1 of which will flash informing that the device is waiting for 1 of the 3 measurements after which the result will appear (in the menu you can change the number of readings in the measurement cycle). In the lower part of the display there are currently available menu functions above specific keyboard keys (e.g. if you click on the  key, the menu will start).



If you switch on the **advanced** mode in the menu, the display also shows the name of the bitch for which the results will be stored in a directory, the current date and time, and the ability to save the result to memory.



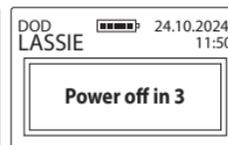
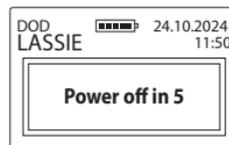
**NOTE!** If the batteries are too low to continue operation, the device will automatically signal this with the following message:



This means that the batteries must be replaced with new ones.

c) In order to save the power source when the keys are not in use, after some time the device will go into a standby mode, i.e. the backlight will go out (this time can be changed in the menu). After pressing any key, the device will return to the working state.

d) If the heat detector remains in the standby mode for a few minutes, the power will be off automatically (this time can be changed in the menu). The display will show a countdown of 10 to 0, which can be interrupted with any key, but if you do not do so, the device will turn itself off to save power source.



e) In order to turn off the device on your own, hold down the  key for 5 seconds or select the “**Turn off!**” option from the main menu.

**NOTE!**

Persons using the advanced mode can download from our website [www.draminski.com](http://www.draminski.com) (or [www.dog.draminski.com](http://www.dog.draminski.com)) special software for communication with the computer, which makes it possible to download data from the device to the computer's hard drive to conveniently and accurately analyse the results, archive data, save valuable comments, create special reports, printouts, generate oestrous graphs based on the results stored in the device's memory etc.



# NOTES TO THE MEASUREMENTS

## SECTION **5**

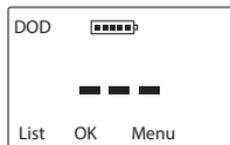
EN

– The housing of the detector is made of the top-quality ABS material resistant to shocks, atmospheric factors and most chemical substances. The device is moisture-resistant, which makes it easier to keep it in a clean and hygienic condition.

– Dрамиński DOD2 is factory set for a measurement cycle consisting of 3 measurements, successively accepted with the **OK** key, thanks to which the device will display the result indicating the measured number of units after the third measurement. However, in the case of very restless animals it is more convenient when the measurement cycle consists of 1 measurement to make the examination last shorter. Therefore, the number of measurements in the measurement cycle can be changed from the menu according to the user's needs (see section: MAIN MENU).

– The measuring range is set to suit all dog breeds and is in the range from 0 to 2,000 units. When the measuring range is exceeded, e.g. when the test is performed "in the air" with the electrodes not covered with mucus, 3

horizontal dashes ( - - - ) will appear on the display.



– Before use, make sure that the electrodes are clean (degreased). Contaminations after the measurement or residual urine on the probe may have an adverse effect on the measurement results. It is forbidden to use any type of lubricants because they will hinder vaginal mucus contact with the electrodes.

– Before using Dрамиński DOD2 for the first time, the user should:

a) take several measurements on a certain number of females which certainly have an oestrous cycle.

b) take several measurements on a few females which clearly do not have an oestrous cycle.

Observing the differences in readings between stages 1 and 2 will help the beginner to become familiar with the functioning of the device and understand the differences between particular animals.

– The functioning of the detector can also be checked as follows:

- a) place the tip of the probe in a container with clean water and perform a measurement cycle. The result will be either very high or exceeding the range (“- - -” message) because water resistance is generally quite high. In practice this does not happen because the electrical resistance of the vaginal mucus is much lower than the maximum detection range of the device.
- b) add a pinch of salt to the water and mix thoroughly. Immerse the tip of the probe and perform a measurement cycle. Now the result should be much lower as salt lowers the electrical resistance of the solution (lower resistance = lower reading).

c) adding another pinch of salt will further reduce the reading (during measurements, the probe should be in a similar position inside the vessel).

This simple experience illustrates the function of the detector and the phenomenon of an abnormal drop of reading due to urine on the electrodes, as urine also contains salt.



# ANIMAL EXAMINATION

## SECTION 6

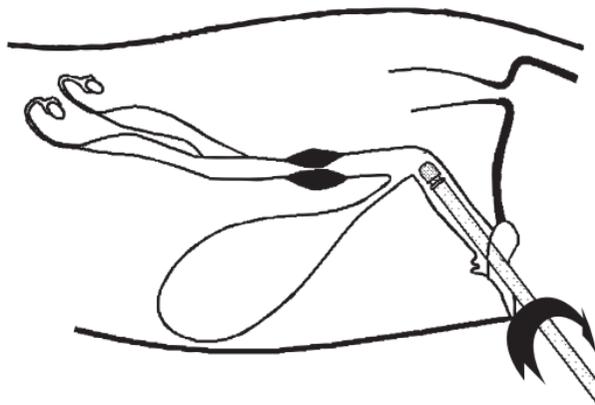
EN

**Follow the steps below prior to the examination:**

- a) turn the device on and check the display to see if the battery charge level is sufficient,
- b) prepare a disinfectant to sterilize the probe (see section: DISINFECTION),
- c) if the vulva area is dirty, wash and wipe it,
- d) in order to use the possibility of saving the results to the memory, activate the advanced operating mode in the menu of the device, make sure that the date and time are set correctly, select from the list an animal to be examined (or add a new animal in the menu, see section: MAIN MENU).

**Examination:**

- a) to facilitate the measurement, you can place the bitch on a platform,
- b) turn on the device,
- c) gently stretch the animal's vulva and start gently inserting the probe of the instrument into the animal's vagina (see section: PROBE INSERTION METHOD),
- d) the measurement should be taken at the lower or upper edge of the cervix os, the upper edge being less palpable,

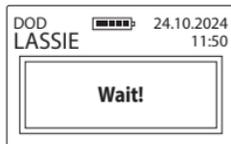


- e) then carefully perform a circular motion in the axis of the device in order to get the best possible contact between the electrodes and the mucus.

If the device is in the measurement mode, a flashing "1" digit appears on the display, which means that the device is waiting for the first measurement,



so when the probe is correctly positioned in the vagina of the bitch, click the **OK** key to take the measurement (during this time the display shows the “Wait!” message)



when “Wait!” is displayed (approx. 1 second), hold the device stationary as the measurement is being carried out during this time,

- f) similarly, before 2 and 3 measurement, a circular motion in the axis of the device should be made in order to improve the contact of the mucus with the probe electrodes and confirm with the **OK** key,
- g) after the end of the measurement cycle, i.e. after the third measurement has been confirmed, the display shows the result in the form of the number of measured units, e.g.



- h) after completion of the examination, the probe must be removed from the animal's vagina,
- i) turn off the device,
- j) disinfect the device (see section: DISINFECTION).

#### **NOTE**

It is necessary to rotate the probe inside the bitch by 360° before each measurement during the measurement cycle to obtain “fresh” vaginal mucus on the probe. In this way, accurate and consistent results can be obtained each time.



# PROBE INSERTION METHOD

## SECTION **7**

EN

Gently stretch the vulva open to make it easier to insert the probe and slide it into the vagina to the depth of about 8 centimetres (3 inches), considering the breed and size of the bitch, until resistance is felt (when the end of the probe reaches the cervix). In some females resistance is not easily felt.

In the cervix area there is the highest concentration of vaginal mucus which is needed to obtain a correct reading.

**Note!** For larger bitches it may be necessary to insert a probe deeper to reach the cervix os (as these bitches have a longer vagina).

It is necessary to insert the probe at a suitable angle (compare with the figure), which is different for different bitches but usually ranges from 25 to 45°.

This angle varies for different breeds, animal sizes and even individual bitches. Sometimes it is even sharper and the probe has to be inserted almost vertically.

Inserting the probe at the right angle will significantly facilitate the measurements, make them safe and accurate and will not cause any discomfort to the examined bitch. Study carefully the drawing that presents the bitch's genital system and the need to insert the probe at the correct angle.

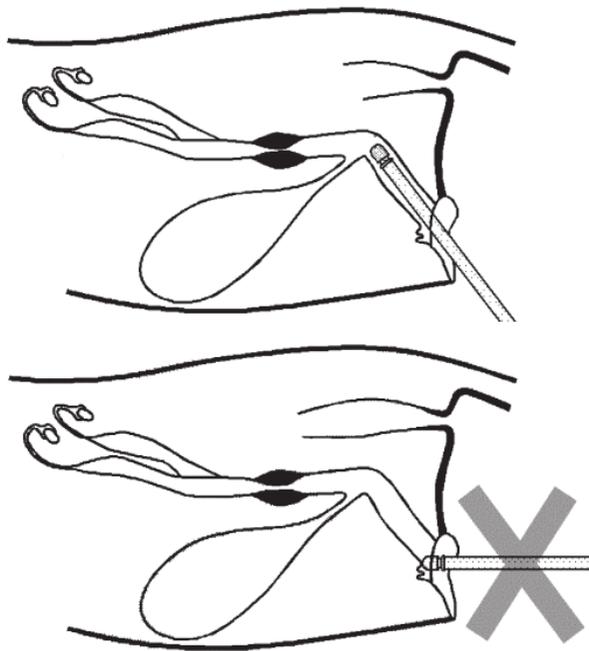
After inserting the probe into the vagina to the appropriate depth, rotate the probe 360° so that the electrodes come into full contact with the vaginal mucus.

Measurements can be made by directing the probe towards the upper or lower cervical perimeter or towards the sides of the cervix, towards the horns (approximately towards 1 and 11 o'clock looking at the clock dial).

It is necessary to rotate the probe 360° before each new reading to obtain "fresh" mucus on the probe. In this way, accurate and consistent results can be obtained each time. Hold the probe in your dog's vagina for a while to let it reach the bitch's body temperature, which will ensure accurate and consistent results.

**Note!** Once adopted, the method should be consistently applied to all measurements, i.e. the probe should be placed at the same depth and the measurements should be taken in the same part of the vagina. Failure to do so may lead to conflicting, accidental results.

Some bitches may have different results for morning and evening tests. However, it is easy to notice that the graph based on morning and evening results will look the same and the maximum value will be at the same time, regardless of the height of the results.





# DISINFECTION

## SECTION 8

EN

The detector must be disinfected before and after each test. Careful, thorough cleaning and disinfection of the device is one of the most important conditions for proper use.

We recommend wiping the probe with a gauze, cotton cloth or even tissue to clean it of mucus, faeces, urine or hair, especially around the electrodes.

Then it is best to wash it under running water and finally immerse it in a disinfectant solution.

**Always use disinfectants in the concentrations specified by the manufacturer**, as they can irritate the animal's mucous membrane and even damage the coating of the measuring electrodes if used improperly. We recommend that you wipe the probe before testing.

**Note!** Use a freshly prepared disinfectant solution before using the device again.

**DRAMINIŃSKI S.A. would like to emphasize the importance of keeping the detector clean. Carelessness in this respect may lead to infection of the reproductive tract. Wash, disinfect and dry the detector after each use.**

# RESULT INTERPRETATION

## SECTION 9

EN

The presented figure shows a typical graph showing vaginal mucus resistance fluctuations and the optimal moment for mating.

**Often in practice there is a variation between animals compared to the presented curve and the reading of the peak value.**

For some bitches the peak value is at 400 units, for others at 600 - 750 units or more than 1,000 units. It should be remembered, however, that the "profile graph" is the most important and not the unit values of the readings obtained.

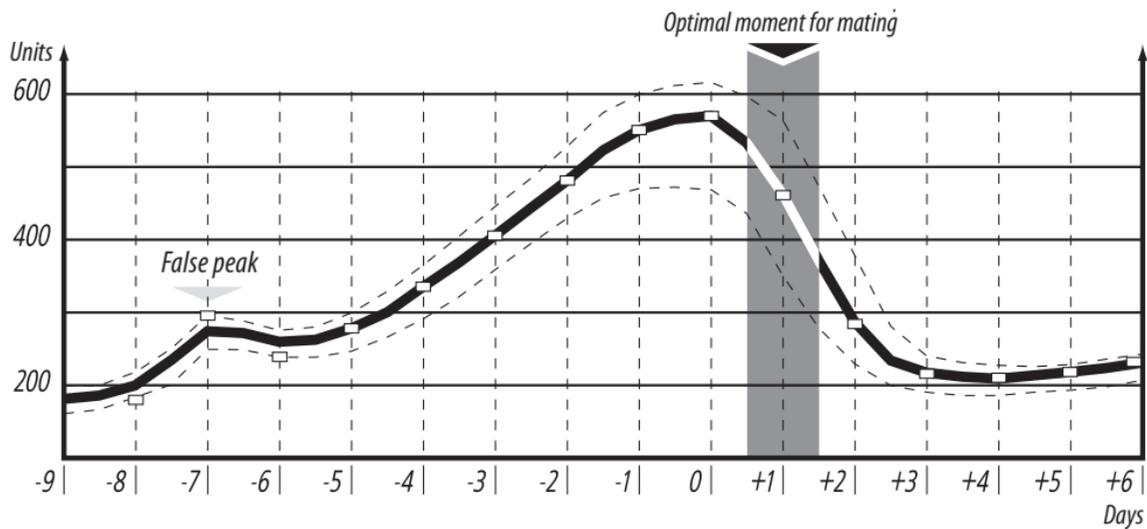
We recommend the following interpretation of readings:

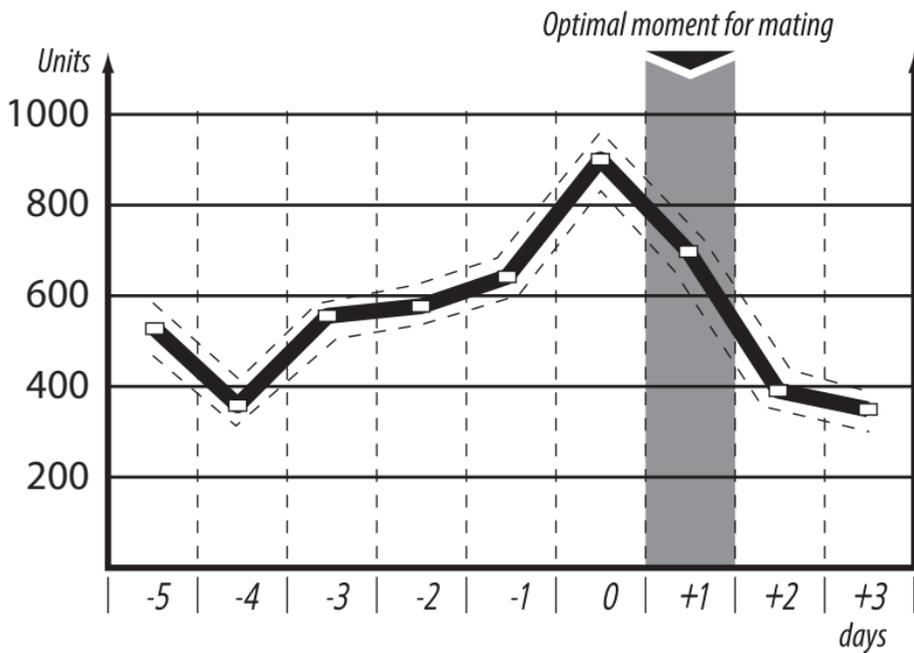
- If the reading is between 100-200 units, there is no need for daily measurements.
- When readings rise above 200 units, take daily measurements. Sometimes readings at this level can last for several days and then show dynamic growth.

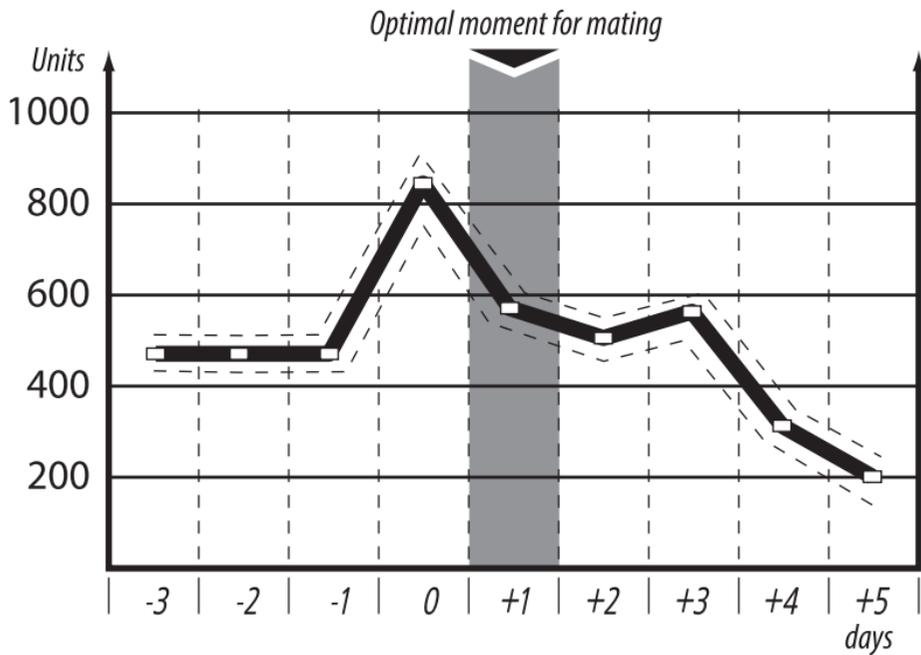
- When readings begin to rise, it is recommended that you perform the tests more frequently (2, 3 or even 4 times a day) to determine the exact moment of ovulation. This is especially important for bitches that have ovulation early and accept males for a short period of time.

As shown in the graph, the most important issue is to capture the day of maximum resistance and the subsequent decline. The first and, at the latest, the second day of the decrease in resistance is the ideal time for mating.

Be aware of the fact that a typical phenomenon of a "false peak" occurs before the actual peak. It is easy to identify because it occurs at much lower resistance levels around day 3 to 5.









# MAIN MENU

## SECTION **10**

EN

Thanks to the functions contained in the main menu of the device, the user can quickly turn off the device, adjust operational settings to their needs, manage memory and much more.

**To turn on the MAIN MENU, press and hold down the**



**key for about 2 seconds.**

### 1. Turn off!

To turn off the device, go to the **Main menu** using the  key, then use the  or  key to select the **Turn off!** option and confirm with the  key.



Thanks to this function, the user can quickly and conveniently turn off the device without the necessity to hold down the  key for 5 seconds and wait for the power auto off option to activate.

## 2. Animals



a) **Change animal** – to change the animal for which the results will be put into the directory, go to the **Main menu / Animals / Change animal**, then use the  or  key to select the appropriate bitch from the list and confirm with the  key, e.g.

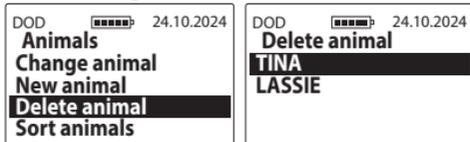


b) **New animal** – to add a new bitch to the device's memory, go to the **Main menu / Animals / New animal**, then enter any name by selecting characters using the arrows and confirming with the  key (to clear the character select the "<" symbol and press the  key). When the

name is entered, press the  key and when the “**Save the name?**” message appears, confirm with the  key or cancel with the  key, e.g.



c) **Delete animal** – to delete an animal from the device’s memory, together with the measurements stored for it, go to the **Main menu / Animals / Delete animal**, then select the appropriate animal from the list and confirm with the  key or cancel with the  key (Note! the animal and its measurements will be irreversibly deleted from the device, therefore if the data is important, remember to first transfer it to the computer using special software), e.g.



d) **Sort animals** – to sort previously saved animals, go to **Main menu / Animals / Sort animals** and confirm with the  button. The animals included in the list are shown in the order of their entry and will be sorted alphabetically.



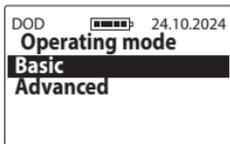
### 3. Results

To view the results stored in the device’s memory, go to the **Main menu / Results** and then scroll through them using the  or  key (the results are arranged chronologically starting with the newest ones). You can also delete individual results. To do this, use the arrows to indicate the result you would like to delete and use the  key, and when the “**Delete?**” message appears, confirm with the  key or cancel with the  key, e.g.



#### 4. Operating mode

- a) **Basic** – in order to facilitate the operation of the device and use only the basic menu functions, go to the **Main menu / Operating mode**, then using the  or  key select the **Basic** option and confirm with the  key, e.g.



- b) **Advanced** – in order to enable all the options of the device such as real time clock, saving measurements, etc. go to the **Main menu / Operating mode**, then using the  or  key select the **Advanced** option and confirm with the  key, e.g.

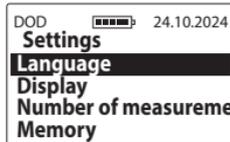


#### 5. Settings

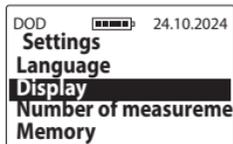


##### 5.1 Language

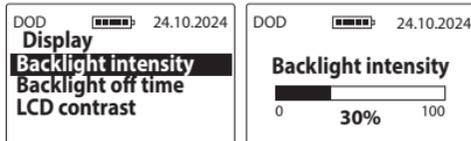
To change the language version of the device, go to the **Main menu / Settings / Language**, then select the language version using the  or  key and confirm with the  key, e.g.



## 5.2 Display

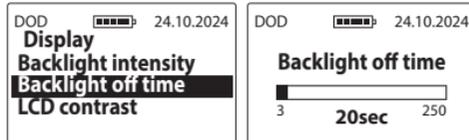


- 5.2 a) **Backlight intensity** – we used energy-saving LED backlighting but remember that stronger backlighting is associated with increased power consumption, which leads to a faster discharge of the battery. To change the backlight intensity, go to the **Main menu / Settings / Display / Backlight intensity**, then select the appropriate value using the  $\downarrow$  or  $\uparrow$  key and confirm with the  $\text{OK}$  key, e.g.

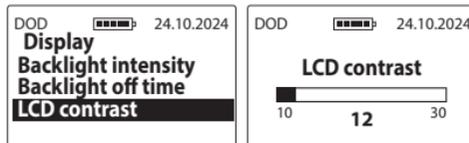


- 5.2 b) **Backlight off time** – adjustment of the time after which the backlight of the display is off and the

device goes into the idle state waiting for the keyboard to be used again (the time is counted from the last click/use of the key on the keyboard of the device). To change the backlight off time, go to the **Main menu / Settings / Display / Backlight off time**, then select the appropriate value using the  $\downarrow$  or  $\uparrow$  key and confirm with the  $\text{OK}$  key, e.g.

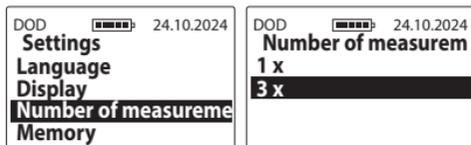


- 5.2 c) **LCD contrast** – to change the contrast of the display, go to the **Main menu / Settings / Display / LCD contrast**, then select the appropriate value using the  $\downarrow$  or  $\uparrow$  key and confirm with the  $\text{OK}$  key, e.g.



### 5.3 Number of measurements

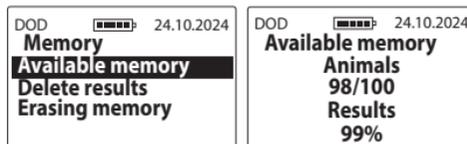
We recommend that the measurement cycle consists of 3 readings, while in the case of very restless bitches that are difficult to hold during the test, it is possible to set 1 reading in the instrument menu, which significantly shortens the time of the entire test. To change the number of readings in the measurement cycle, go to the **Main menu / Settings / Number of measurements**, then use the  or  key to select the appropriate number and confirm with the  key, e.g.



### 5.4 Memory



5.4 a) **Available memory** – to check the current amount of free space in the device's memory, go to the **Main menu / Settings / Memory**, use the  or  key to select the **Available memory** option and confirm with the  key, e.g.



5.4 b) **Delete results** – to delete all results stored in the device's memory, go to the **Main menu / Settings / Delete results**, and confirm with the  key. This option deletes the results from all animals stored in the device (the animals will not be deleted). **Note!** Examination results will be irretrievably deleted from the device, so if the data is important, remember to first transfer it to the computer using special software.



5.4 c) **Erasing memory** – to erase the entire device memory (all results and animals), enter the **Main menu / Settings / Memory / Erasing memory** and confirm with **OK**. **Warning!** The data will be irretrievably erased from the device, so if it is relevant, remember to first transfer it to your computer using special software.



### 5.5 Power auto off

Adjustment of the time after which the device turns off automatically counting from the last click/use of the keyboard. To change the power automatic off time, go to the **Main menu / Settings / Power auto off**, then select the

appropriate value using the **↓** or **↑** key and confirm with the **OK** key, e.g.

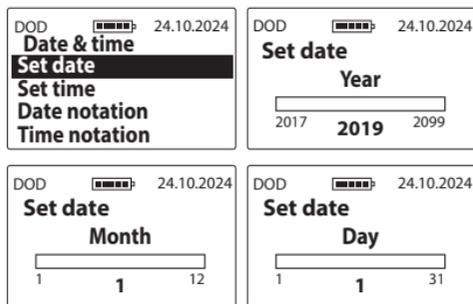


### 5.6 Date & time

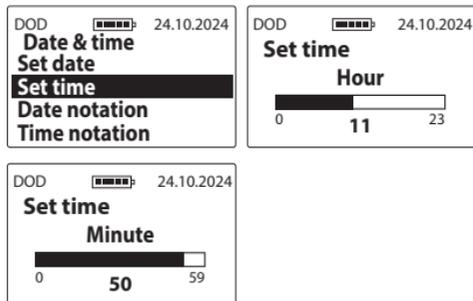
DOD2 has a real time clock so that the measurement results are stored in the memory together with the actual date and time of performance.



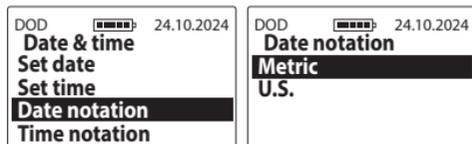
5.6 a) **Set date** – to set the current date, go to the **Main menu / Settings / Date & time / Set date**, then use the **↓** or **↑** key to select the appropriate value and press the **OK** key to confirm the year/month/day, e.g.



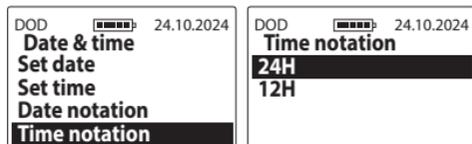
5.6 b) **Set time** – to set the current time, go to the **Main menu / Settings / Date & time / Set time**, then use the  $\downarrow$  or  $\uparrow$  key to select the appropriate value and press the  $\text{OK}$  key to confirm the hour/minutes, e.g.



5.6 c) **Date notation** – to change the format of date display, go to the **Main menu / Settings / Date & time / Date notation**, then use the  $\downarrow$  or  $\uparrow$  key to select the appropriate option and confirm with the  $\text{OK}$  key, e.g.



5.6 d) **Time notation** – to change the format of date display, go to the **Main menu / Settings / Date & time / Time notation**, then use the  $\downarrow$  or  $\uparrow$  key to select the appropriate option and confirm with the  $\text{OK}$  key, e.g.



## 6. About

To check the device information and manufacturer's contact details, go to the **Main menu** using the  key, then use the  or  key to select the **About** option and confirm with the  key.

Here we can conveniently check e.g. model of the device, software version, serial number of the device as well as the address and contact details of Dramiński S.A. on page 2 e.g.



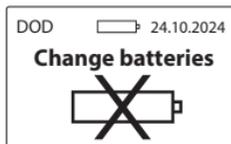


# BATTERY REPLACEMENT

## SECTION 11

EN

The device features an automatic indication that the battery is discharged. In this case, the **“Change batteries”** message in the form of a graphic symbol will be displayed immediately after turning on or during use and the device will automatically turn off.

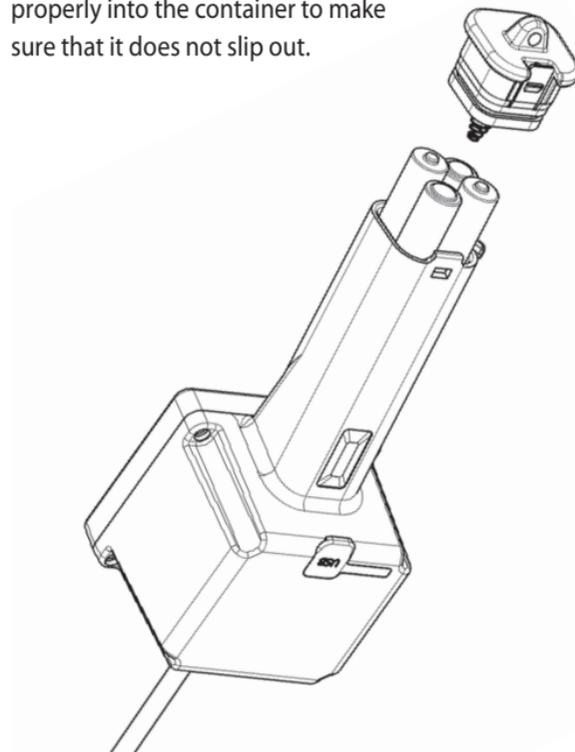


The device is powered by four standard 1.5 V AA type batteries (commonly known as Mignons).

**To replace the batteries, it is necessary to:**

- Press the lock lever of the battery compartment cover,
- Remove the cover from the battery compartment,
- Remove used batteries and insert a new battery pack according to the polarity markings + / -,
- Press the battery compartment cover until you hear a clearly audible click,

- Check whether the cover has latched properly into the container to make sure that it does not slip out.



# FINAL REMARKS

## SECTION 12

EN

- We advise you not to lend the device to other breeders in order to reduce the risk of transmission of infectious diseases.
  - Strictly observe the disinfection procedures.
  - Store the device in dry conditions at room temperature.
  - Wash the instrument in lukewarm water - do not use hot or boiling water.
  - Dirt or grease from the skin on the electrodes causes false (overstated) readings, while urine on the electrodes or solutions containing salt cause decreased readings.
  - Measurements should always be taken in the same way and in the same vaginal position, which guarantees absolutely reliable results.
  - If the device is not going to be used for a longer period of time, we recommend that you remove the batteries from the battery compartment of the device to reduce the risk of damage resulting from electrolyte leakage.
- In case of problems with the device or difficulties in interpreting the results, we recommend (before sending the device for service) contacting the manufacturer, i.e. DRAMIŃSKI S.A. or a local authorized and certified distributor.
  - DRAMIŃSKI S.A. requests all breeders to send their comments and inform us about the results of using the device.
  - It is not allowed to use lubricants for the test because they limit the contact of the electrodes with the mucus, which may bias the results.
  - It is forbidden to unscrew the display window, interfere with it or have it serviced by unauthorized persons, as this may cause unsealing of the device, permanent damage and will affect the warranty conditions.

**We recommend using good quality batteries.**

# TECHNICAL DATA

## SECTION **13**

EN

<b>Approximate unit weight</b>	380 g
<b>Approximate dimensions</b>	33.0 x 8.0 x 7.5 cm
<b>Probe length</b>	12.5 cm
<b>Power supply</b>	four 1.5 V AA type batteries (LR6)
<b>Battery status indication</b>	graphic
<b>Battery low indication</b>	automatic
<b>Power consumption</b>	from 11 mA to 54 mA (depending on the set backlight intensity)
<b>Measurement control</b>	single chip microcomputer
<b>Estimated continuous working time on one alkaline battery pack</b>	209 hours when backlight is set to 0% 95 hours when backlight is set to 30%
<b>Display</b>	LCD display with LED backlighting, diagonal 2.4'
<b>Keyboard</b>	membrane
<b>Data transmission</b>	via USB
<b>Update</b>	via USB
<b>Data recording</b>	internal memory
<b>Memory capacity</b>	100 animals / 200,000 measurements with date and time
<b>Measurement range</b>	0-2,000 units
<b>Additional functions</b>	real time clock, LED backlighting, pop-up menu, saving the results, software for data transmission and analysis (reports, graphs, printouts, archiving), independent software update
<b>Measurement resolution</b>	10 units
<b>Recommended working temperature</b>	from 10°C to 45°C
<b>Recommended storage temperature</b>	from 5°C to 50°C



**DRAMIŃSKI S.A.**

Wiktora Steffena 21

11-036 Sząbruk, Poland

tel. +48 89 675 26 00

e-mail: [agri@draminski.com](mailto:agri@draminski.com)

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

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