

# EICKEMEYER® DOPPLER

## USER MANUAL



Item no. 217210

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**Eickemeyer®**



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### 1. APPLICATION

The pocket size EICKEMEYER® Doppler veterinary blood flow detector is a simple device enabling a wide range of easy and reliable diagnosis of blood flow in the vessels, auscultation on very small animals, and blood pressure measurement.

The package includes:


- Doppler unit
- 8 MHz transversal linear probe
- Battery charger
- 1 bottle of EICKEMEYER® ultrasound gel

### 2. OPERATION OF THE DOPPLER UNIT

For shipment and transportation, the probe can be disconnected from the main unit. Push-pull probe connectors are situated at the side of the main unit. A pair of connectors is symmetrical, generally do not care to the connecting order (with flat transducer, due the geometry, and only in difficulties it is worth to check both positions). The self-latching mechanism of connectors protects of pulling out by the cable.

**To disconnect always pull the metal part of the connector!**

The EICKEMEYER® Doppler is easy to use. The unit design was thought to simplify its use reducing to minimum controls – volume up/down and on/off switches. To turn on the device – press button **ON**, to turn off – press **OFF**.

To increase the volume – press .

To decrease the volume – press .

The continuous green LED light indicates that the unit is turned on. The pulsating green light shows that the batteries should be recharged. When the unit is not used for 4 minutes or batteries are low, it will be turned off automatically. To charge, plug the chargers mini-jack to the main unit and connect to the mains. The red LED near connector should shine. While charging the use of the device is excluded. The full battery charging time is 15 hours. During charging the red light becomes weaker and disappears.

The signal of blood flow can be heard thanks to the integrated speaker. The doctor can listen privately by plugging headphones (the speaker is automatically turned off). The mini-jack socket is made to plug the charger or the headphones.

### 3. HOW TO MEASURE BLOOD PRESSURE

#### Measurement Procedure

1. Place cuff above the vessel to examine.
2. Shave the area where to position the probe or wet hairs with alcohol (underneath the tail or the carpal pad at the end of the paw or the radial artery).
3. Put some gel on the probe. Put in contact with the vessel to examine (without pressure because it would stop or reduce blood flow).
4. Move the probe slightly until you hear the best possible Doppler sound signal.
5. Maintain the probe with your finger or fix it on the skin with a sticking plaster.
6. Inflate the cuff with the sphygmomanometer to block the artery until you hear no sound signal.
7. Deflate slowly and progressively the cuff.
8. When you hear the sound signal again, it corresponds to the systolic pressure.
9. The diastolic pressure corresponds to a change of the Doppler's tonality. The detection of diastolic pressure needs experience as well as good operating conditions.
10. To validate the results, it is recommended to repeat the measurement procedure 3 times with an interruption of a few minutes.

Table 1: Hypertension (systolic blood pressure in mmHg) and associated risk of organ damage

Blood pressure	Diagnosis	Risk of organ damage
< 140	normotensive	minimal
140 – 159	prehypertensive	low
160 – 179	hypertensive	moderate
≥ 180	highly hypertensive	high

Table 2: Recommended cuff size according to limb circumference

Limb circumference (cm)	Cuff width (cm)	Equals leg circumference %
2.5 – 4.4	1	40 – 23
4.5 – 7.0	2	44 – 29
7.1 – 9.9	3	42 – 30

### 4. MAINTENANCE

The EICKEMEYER® Doppler should be operated within the range of environment temperature from 10 °C to 45 °C by relative humidity not exceeding 85 % and atmospheric pressure 70–106 kPa. Do not expose it neither to extreme heat nor to extreme cold.

**Special care is necessary for the probe.** Mechanical shock is to be avoided, and special precautions are needed with the ultrasonic probe since it can get damaged when hit by a hard surface. The probe can be cleansed by means of a soft tissue, dampened with water or weak alcohol. Do not scratch. Do not use organic solvents. Only mild cleaning and disinfecting liquids are recommended. Do not try to pull out the probe by the cable.

### 5. REPAIRS TO THE DEVICE

In case of damage or of any queries whatsoever, concerning the correct operation of the device, please contact the EICKEMEYER® customer service. There are no user serviceable parts inside unit. Do not open it, as there are no elements inside designed to be operated by the user.

### 6. SPECIFICATIONS

Ultrasonic frequency	8 MHz
Audio output-loudspeaker	> 200 mW
Frequency response	300 Hz–6 kHz
Rechargeable battery	3 x 1.2 V, 1,500 mAh
Charger	9 V, 150 mA, 3.5 mm jack
Operating time	approx. 6 h
Charging time	15 h
Dimensions	175 x 80 x 25 mm
Weight with battery	300 g



## NOTES

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