

# Blood Pressure Recorder

*Multi function, non-invasive recorder*



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# Blood Pressure Recorder

*Reliable pressure generator provides smooth and stepless pressure build-up for non-invasive blood pressure measurement*



## Background

Non-invasive techniques align with the three Rs principles (Replacement, Reduction, Refinement) in animal research by providing valuable data while minimizing animal distress and reducing the number of animals required. Ugo Basile offers specialized tools to non-invasively and reliably measure blood pressure in small animals, enabling researchers to collect high-quality data.

Invasive methods are often unsuitable for cardiovascular research areas like hypertension, heart disease, and stroke, as they require surgical

intervention. Additionally, invasive procedures frequently necessitate anesthesia, which alters blood pressure, causes stress, and affects experimental outcomes, thus limiting the translational value of studies. Non-invasive methods, by contrast, reduce risks such as infections, tissue damage, and bleeding, while supporting animal welfare and ethical considerations.

From a technical perspective, non-invasive methods are highly adaptable to variations in animal size and anatomy, enhancing their accuracy and versatility.

## Typical device applications

Ugo Basile non-invasive blood pressure recorder for use in a wide range of scientific studies, where systolic and diastolic pressure needs to be measured in a non-invasive way in anesthetized or awake animals.

Fields of application:

- **Cardiovascular research:** to study how factors like environment, genotype, drugs, or diet affect blood pressure.
- **Hypertension research:** using mice and rats as models to investigate the development, progression,

and treatment of high blood pressure.

- **Drug Development and Genetic Screening:** to test drugs for their effects on blood pressure and include it in phenotyping and disease model studies.
- **Metabolic research:** to explore the link between blood pressure, diabetes, obesity, and cardiovascular health.
- **Circadian rhythm studies:** to monitor blood pressure fluctuations and understand their role in health regulation.

## Product Description



Ugo Basile Blood Pressure Recorder is a reliable pressure generator that provides smooth and stepless pressure build-up.

A "Riva Rocci sphygmomanometer" provides a precise recording of the systolic and diastolic blood pressure. It works by transmitting pressure to the tail cuff to obtain accurate systolic and diastolic pressure readings that are digitally presented in 10 mm Hg steps. The animal pulse rate can be assessed in real time by a pulse rate counter, which picks the signal from the pulse transducer.

The Ugo Basile non-invasive Blood Pressure system combines functionality of multiple systems in a single turn-key, stand-alone solution thanks to:

- A pressure generation-pressure monitoring system
- A pulse amplifier
- A thermal-array analog and digital recording unit
- Pulse rate measuring and recording

### Additional features of the device:

- Microprocessor controlled functions to self-diagnosis, calibration, signal filtering, signal storage..
- Internal memory and PC output (BNC already amplified).
- Can be connected to popular data acquisition systems including Ugo Basile DataCapsule-Evo Recorder
- A mouse or rat restrainer is provided with each package.
- Optional animal restrainers available in different diameters to fit various animal sizes, featuring conical "muzzle", telescope-adjustable length, quick fit/release back lid with an ample U-shaped tail slot, ventilation slots and selection of heat conductive materials to guarantee body heat dissipation.
- Optional rodent temperature controlled heating boxes available for rats and mice; temperature setting from room temperature to 39.9°C, in 0.1°C steps.

## Features

## Benefits

Internal memory and PC output

Turn-key and stand-alone

Analogue output (BNC)

Can be connected to external data acquisition systems without amplification need

Algorithm for diastolic and systolic pressure

The experimenter can rely on the electronically-driven assessment of pressure parameters and heart rates.

## Main references

- W. R. C. Ouedraogo et al., 2023, [Evaluation of acute, subacute toxicity and in vivo impact of aqueous decoction of Flemingia faginea Guill. & Perr. \(Barker\) leafy stems on NMRI mice and normotensive Wistar rats](#), Journal of Drug Delivery and Therapeutics (JDDT)
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- A. M. Nasr, et al., 2020, [Renal protective effect of nebivolol in rat models of acute renal injury: role of sodium glucose co-transporter 2](#), Pharmaceutical Reports
- A.S. Mainasara et al., 2016, [Blood pressure profile and insulin resistance in salt-induced hypertensive rats treated with camel milk](#), Mediterranean Journal of Nutrition and Metabolism
- H. Schirutschke et al., 2014, [A New Apparatus for Standardized Rat Kidney Biopsy](#) PLOS One

## Specifications - General

Start-Stop	via the START key on the front panel
Pressure Range	50 to 290 mm Hg
Power Requirement	115 or 230 V, 50/60 Hz, 25 W max
Sound Level	< 70 dB (A)
Operating Temperature	0° to 40° C

## Physical

Dimensions	35 x 35 x 16.5 (h) cm
Weight	Kg 10.6

## Ordering Informations

58800	BP RECORDER, with accessories for RAT: 8mm pulse pick-up, 13mm cuff, 50mm holder
58850	BP RECORDER, with accessories for MOUSE: 3mm pulse pick-up, 6mm cuff, 30mm holder
58900	BP RECORDER, with accessories for RAT & MOUSE

## Optional Items

### Pulse Pick-up

58000-503	Pulse Pick-up for Mouse, diam. 3 mm
58000-504	Pulse Pick-up for Mouse, diam. 4 mm
58000-505	Pulse Pick-up for Rat, diam. 5 mm
58000-506	Pulse Pick-up for Rat, diam. 6 mm
58000-507	Pulse Pick-up for Rat, diam. 7 mm
58000-508	Pulse Pick-up for Rat, diam. 8 mm
58000-509	Pulse Pick-up for Rat, diam. 9 mm

### Tail Cuffs

58000-606	Tail Cuff for Mouse, diam. 6 mm
58000-609	Tail Cuff for Mouse, diam. 9 mm
58000-611	Tail Cuff for Mouse, diam.11 mm
58000-613	Tail Cuff for Mouse, diam. 13 mm

### HOLDERS

58000-343	Mouse Holder, internal diam. 30 mm internal diam.
58000-344	Rat Holder, internal diam. 40 mm
58000-345	Rat Holder, internal diam. 50 mm
58000-346	Rat Holder, internal diam. 60 mm
58000-348	Rat Holder, internal diam. 80 mm

### Other Accessories

58000-840	Mouse Heater, compl. with 6 mouse holders
58000-343	Rat Heater, complete with 5 rat holders of selectable internal diam.*
58000-343	Rat Scanner, complete with 5 rat holders of selectable internal diam °

\* if diameter is not specified, the 50mm size will be supplied

° pressure cuffs & pulse pick-ups are not included, and should be ordered separately

Extra warranty (standard 12 months + 12 months with product registration) available

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