

Model MK-2000ST

NP-NIBP MONITOR FOR MICE & RATS

Introducing the first and only Non-Preheating, Non-Invasive

Blood Pressure Monitor for Mice and Rats in the world



Capable of recording from neonatal mice (1.4 g) to aged rats (1 kg)

Introduction

To measure blood pressure of small animals such as rats or mice using conventional BP Monitors, animals had to be preheated by some means. However, **the advent of MK-2000 has made it possible to measure blood pressure without preheating animals provided that the room temperature is at least 23 degrees C.** MK-2000ST is the successor to MK-2000 and has become more compact than ever before.

MK-2000ST is ideal for investigating the effects of drugs on animals. Once the animals are restrained properly, just press the START key and HR (Heart Rate), SBP (Systolic BP), MBP (Mean BP) and DBP (Diastolic BP, calculated value) will be automatically measured.

It photoplethysmographically measures pulsatile blood pressure of tail arteries. Pulses are stored into the computer memory and the peak levels of the pulses are plotted on the display. X-axis indicates cuff pressure, and Y-axis indicates amplitude of pulses. Using this method, the operator can decrease the risk of selecting artifacts and BP measurement is made more objective compared to the conventional digital display method.

SBP is initially estimated by inflating the cuff at approximately 25 mmHg/sec. During cuff deflation at about 4-5 mmHg/sec, SBP is determined precisely. SBP is defined as the point when the pulse reappears.

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Main Features

1. Two operation modes are available.

With Mode 1 HR (Heart Rate) and SBP (Systolic Blood Pressure) are measured. With Mode 2 HR, SBP, MBP (Mean Blood Pressure) and DBP (Diastolic Blood Pressure, calculated value) can be measured.

MODE1	HR		SBP	
MODE2	HR	SBP	MBP	(DBP)

NOTE : HR (Heart Rate), SBP (Systolic BP), MBP (Mean BP), DBP (Diastolic BP, calculated value)

2. Continuous Measurement Function

Continuous measurement can be performed up to ten (10) times. Further, continuous & rapid measurement can also be performed in order to shorten the measuring time.

3. Rapid Printout Function

Onscreen data including average (AV) and standard deviation (SD), are printed out in about one (1) second by the high-performance thermal printer. Data may also be deleted at the operator's discretion.

4. Colored mice such as C57BL/6, neonatal mice weighing 1.4 grams, hamsters (anaesthetized) and guinea pigs (non-anaesthetized), of which blood pressure was so far considered difficult to measure, can be measured.

5. Sick animals can be measured. (e.g. animal with cardiac infarction)

6. Multi-channel system is no longer needed. Just prepare multiple restrainers, and measurement can be done one after the other.

7. Auto-Sequence Function

Blood pressure of a tail artery of an animal can be monitored automatically at specified time intervals, which can be 1 - 99 minutes in length. At each interval, anywhere from 1-10 measurements can be made. This function invokes a series of procedures automatically--- measurement, printout of data and transfer to a PC.

8. Time-Stamp Function

The MK-2000ST precisely records the time of each BP measurement.

9. Hard Copy Function

The screen on the display can be captured to the thermal printer using the PrtScreen key.

10. An RS-232C interface is provided on the rear panel of the main unit. Using the optional DCS-2000 Data Collection Software (Windows Version) the data obtained can be exported to a personal computer and stored as a CSV file.

11. The animal holders are made of dark brown acryl, allowing BP measurement under relatively stress-free conditions.

12. Operation is very simple.

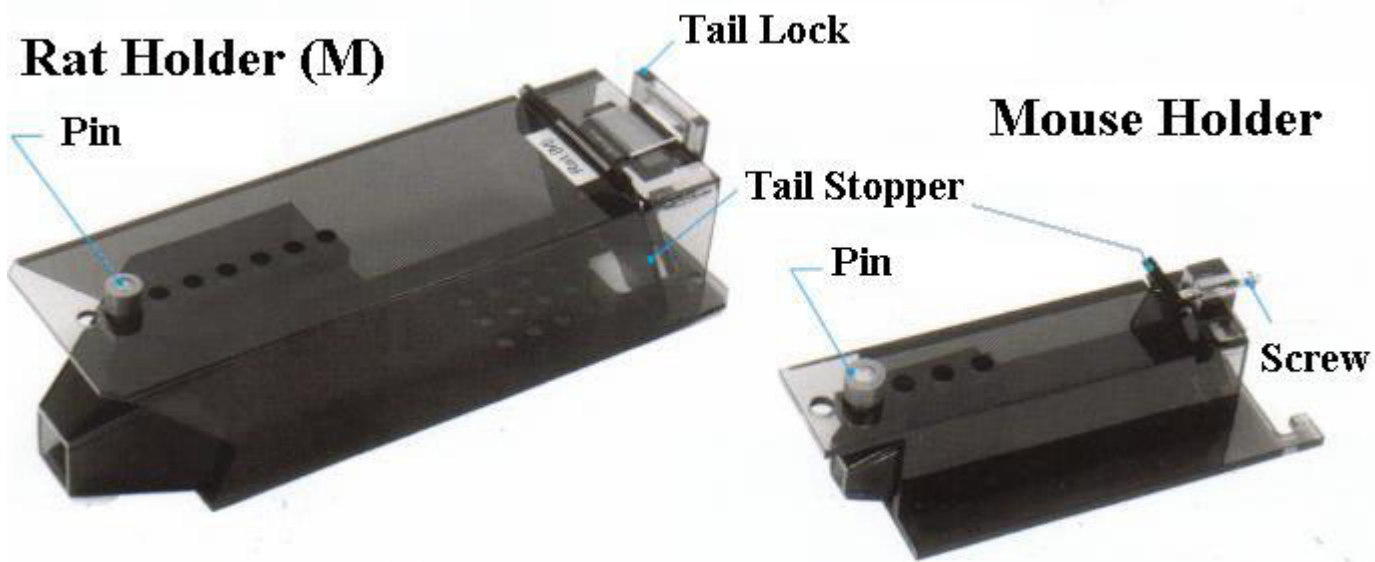
SPECIFICATIONS

Main Unit (MK-2000ST)	
SBP	Cuff pressure when pulse reappears
MBP	Cuff pressure when pulse amplitude becomes largest
DBP	Calculated value based on SBP and MBP $(3MBP-SBP)/2$
Detection	LED, Photo Transistor
Inflation Range	0 - 350 mmHg
Printer Outputs	Date, Time, Animal No., Weight, Operation Mode, Interval, No of Measuring Trials, Raw Data, Average and S.D.
Chart Paper	Thermo-sensitive 58 mm Wide x 25 m Long
Power	AC100-130V 50/60Hz
Dimensions	210W x 310D x 210 mm H
Weight	Approx. 8 kg

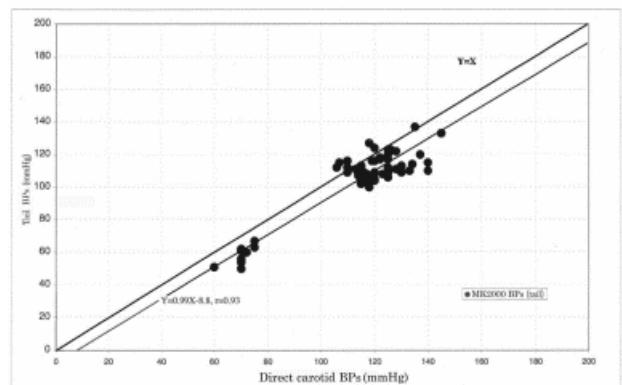
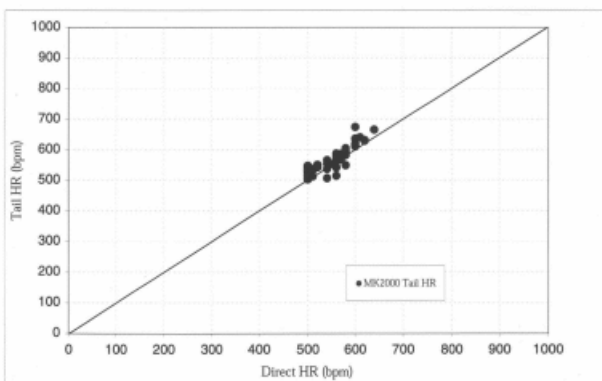
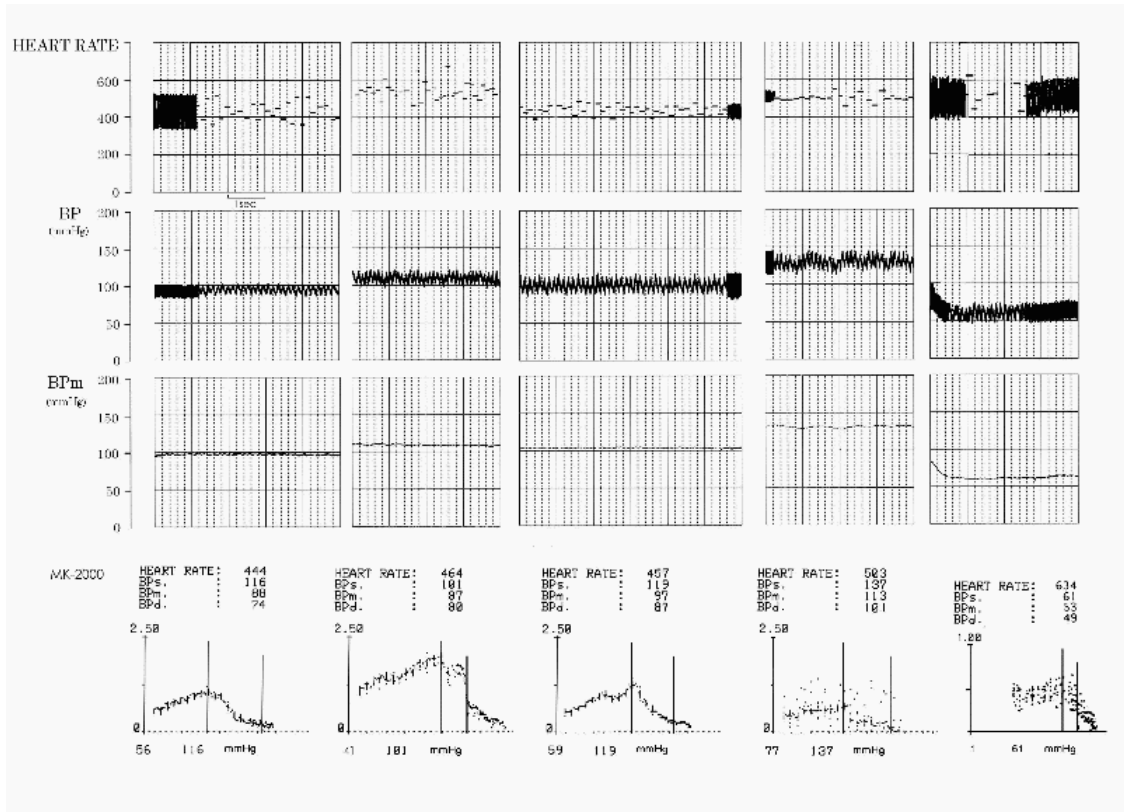
Keyboard	
Function Keys	33
Dimensions	145W x 120D x 20 mm H
Weight	Approx. 0.4 kg

The Standard System Comes Supplied with:	
Main Unit (Printer included)	1
Keyboard	1
Animal Holder (Any one from the list)	1
Cuff-pulse Sensor (Any one from the list)	1
Measuring Stand for Rats	1
TSP-10 Chart Paper (Pack of 5 Rolls)	1
APC-2000 Accessory Case	1
Dust Cover	1

Animal Holders		Cuff-Pulse Sensors	
Mouse Holder (3S)	5-10 g	Neo24NH	1.4 - 2 g
Mouse Holder (SS)	10-20 g	Neo32NH	2 - 5 g
Mouse Holder (S)	20-30 g	Neo40NH	5 - 10 g
Mouse Holder (M)	30-40 g	Mouse NH	20-50 g
Mouse Holder (L)	40-50 g	OB Mouse NH	OB Mouse & Mouse 5-20 g
Rat Holder (3S)	50-70 g	C57 Mouse NH	C57BL6 Mouse
Rat Holder (SS)	70-90 g	Hamster (S) NH	Approx. 60-80 g
Rat Holder (S)	90-150 g	Hamster (M) NH	Approx. 80-120 g
Rat Holder (SM)	150-210 g	Hamster (L) NH	Approx 120-160 g
Rat Holder (M)	210-270 g	Rat (S)NH	90-210 g
Rat Holder (ML)	270-350 g	Rat (M)NH	210-350 g
Rat Holder (L)	350-500 g	Rat (ML)NH	350-500 g
Rat Holder (LL)	500-800 g	Rat (L)NH	500-800 g



Correlation between simultaneously recorded blood pressures (BP) from carotid catheter and BP measured with the Model MK-2000 in mice. Good correlation was seen in a wide range of BP, which was induced by i.v. infusions of pressor or depressor agents.



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 Chiba University

Specifications are subject to change without notice.

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