

⚠ Caution | Don't mark on the model and other components with pen or leave printed materials contacted on their surface.  
Ink marks on the models will be irremovable.

MW7B

# Blood Pressure Measurement Trainer II

## Instruction Manual

### Table of Contents

- Introduction ..... P.1
- Before You Start
  - Set Includes ..... P.2
  - DOs and DON'Ts ..... P.3
  - The Arm Model: Parts Names and functions Connections ..... P.4
- Training
  - Control Panel ..... P.5
  - Training Modes ..... P.6
  - Deactivate the Alarm ..... P.7
  - Calibration ..... P.8-9
  - Setting the Strength of Palpable Pulses ..... P.10
  - Operational Flow ..... P.11
  - Normal Mode ..... P.12
  - User Setting Mode ..... P.13-14
  - Random Mode ..... P.15
  - Preset Cases for Random Mode ..... P.16



## Manufacturer's note

The MW7 Blood Pressure Measurement Trainer facilitates trainings in acquiring professional skills with objective evaluation. The prepared examples based on WHO classification with random play function helps repeated trials in self learning and group study. The BP values are digitally controllable.

The depressurizing rate can be monitored.

The trainer is also to be used for trainees' objective skills assessment.

### Training Skills

- Cuff placement
- Manual pressurization
- Auscultation of Korotkoff s sounds
- Palpation of radial pulses
- BP reading
- Depressurization



Cuff Placement



Manual Pressurization



Korotkoff s Sounds



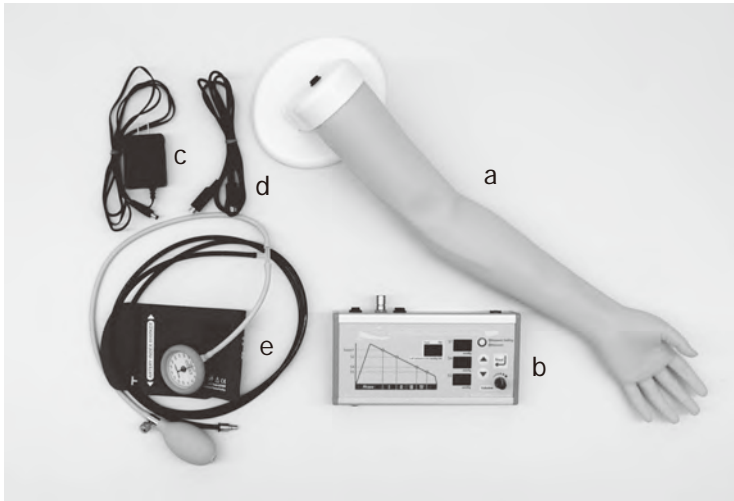
Palpation

### Features

- Nine preset cases: se examples based on WHO classification plus auscultation gap and missing S5 (K5).
- Blood pressure values can be digitally controlled at three points: S1 (K5: systolic pressure), S4 (K4) and S5 (K5: diastolic pressure).
- Auscultation of realistic Korotkoff s sound S1 (K1) to S5 (K5) .
- Radial artery pulses synchronized with the sound and the cuff pressure.
- Depressurization rate can be numerically monitored.
- Excessive cuff pressure is warned by beep.
- Random play mode for self learning.

### Set Includes

Before your first use, ensure that you have all the components listed below.



- a. Arm Model 1 piece
- b. Controller 1 piece
- c. AC adaptor 1 piece
- d. Power cable 1 piece
- e. Aneroid sphygmomanometer unit 1 piece
- Instruction manual 1 copy
- Carrying bag (no photo) 1 piece

### DOs and DON'Ts

#### DOs

##### ● Operate the system under the designated circumstances

Power input: AC100V~230V plus or minus 10%, 50Hz/60Hz  
Temperature range: between 0 degrees C and 40 degrees C (no congelation)

Relative humidity; between 0%to 80% (no condensation)

\*Connecting to power source outside of the designated range may lead to fire.

##### ● Safe disposition

To avoid short circuit, do not run the simulator set above a power receptacle.

##### ● Handle the power plug and cord observing following precautions

1. Clean the head of the plug periodically.
2. Plug in the plug to the outlet firmly to the end.
3. Always hold the plug when unplugging. Do not pull the cable.
4. Do not force to bend, twist the cable and avoid scratching or cutting on it.

Failing to follow the above precautions can result in damage in the plug and the cable, constituting risk of fire or shock.

##### ● When the electric parts get warm or produce smoke, immediately turn off the power and unplug from the power source

Risk of fire. Contact your distributor or the manufacturer for repair.

##### ● Handle with care

The materials for the models are special compositions of soft resin. Please handle them with utmost care at all times. Talcum powder may be used on the manikin after use to preserve suppleness of the skin and prevent it from being stained.

The manikin skin may be cleaned with a wet cloth, when necessary, using mildly soapy water or diluted detergent.

##### ● Storage

Store the simulator at room temperature, away from heat, moisture and direct sunlight.

Storage under the temperature above 50 degrees C may reduce the performance quality of the simulator.

#### DON'Ts

##### ● Do not disassemble or open electric or precision components

Do not open up or disassemble the housing for electric parts or precision components.

Refrain from opening up any lids, caps or covers for such area, and never run the system while any of such covers are open.

\*Never disassembling the electric components, power plug and cable as it may create a risk of fire, shock or injury.

Contact your distributor or the manufacturer for repair.

##### ● Never wipe the product and components with thinner or organic solvent

##### ● Ink marks on the soft surface won't be removable

Don't mark on the product and components with pen or leave any printed materials in contact with their surface.

##### ● Do not give shocks

The electric components are precision instruments.

Strong shocks or continuous vibration may cause breakages of its internal structure.

##### ● Do not run the system continuously over 2 hours

Take at least 30 minutes shutdown, turning off the power, every 2 hours.

##### ● Do not wet the electric components

Do not pour or spill water or liquid detergent over the electric components, power cable and power plug.

Running the system while the electric components are wet may create a shock hazard or a risk of fire.

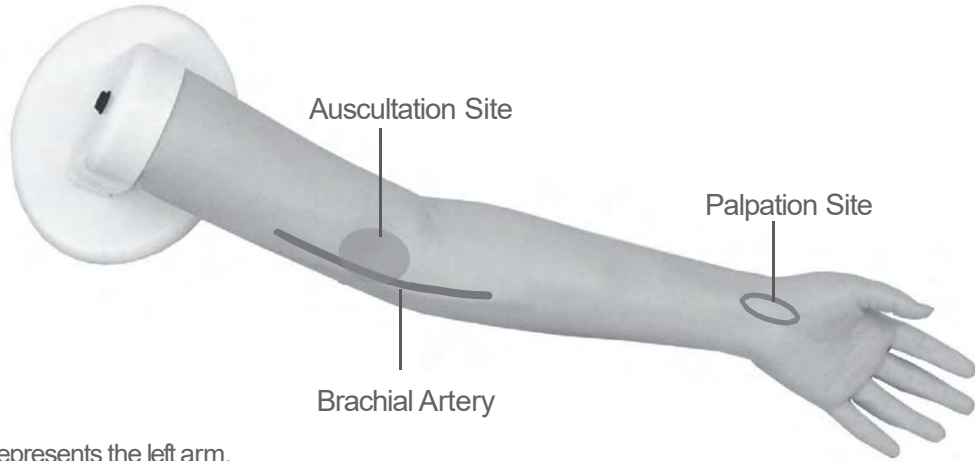
##### ● Do not handle the power plug with wet hands

Risk of shock.

##### ● No fire

Do not put the product close to fire. It may lead to discoloration or deformation of the product as well as short circuit, creating a risk of fire.

### The Arm Model: Parts Names and Functions



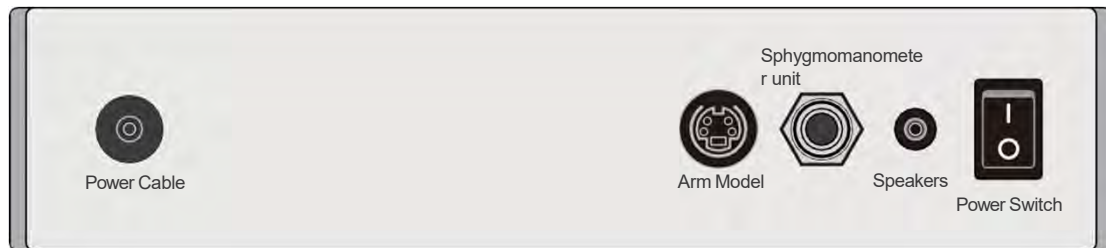
\*The model represents the left arm.

### Connections

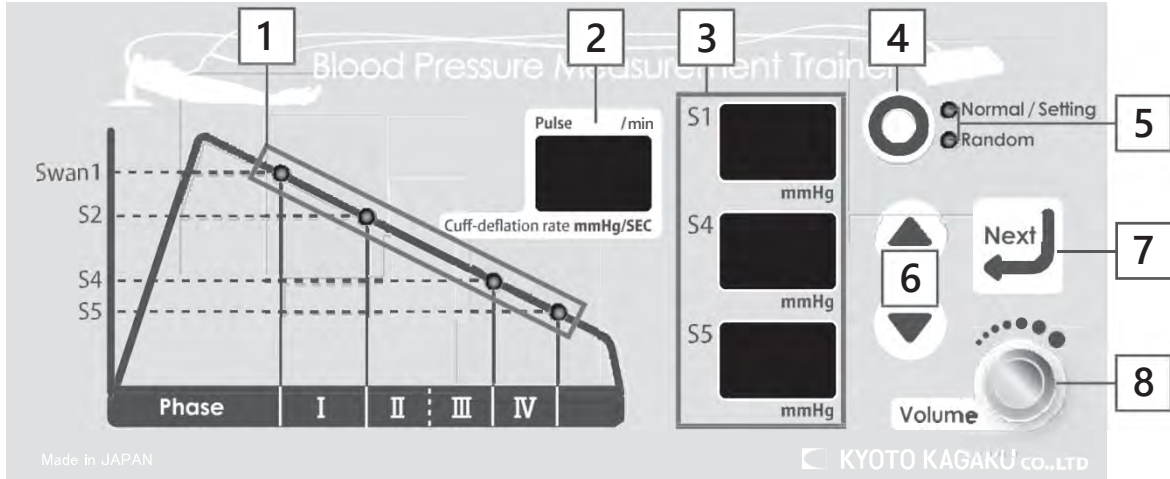
Connect the cables to the controller as shown below.



.....  
Do not connect the cables with your hands wet. Danger of electrification. Insert connectors deep enough to ensure reliable connections. External speakers are not included in the standard set. A regular speaker unit or a headphone can be used.



## Control Panel



- 1 LED indicator S1(K1)-S5(K5)**  
LED indication synchronized with cuff's pressure, Korotkoff's sounds and pulses.  
\*All lamps light up while pulse rate is being adjusted.  
\*All lamps light up when the "auscultatory gap" case is selected.
- 2 Pulse Rate/Depressurizing (cuff deflation) Rate**  
\*Shown as "CAL" while calibration process is ongoing.
- 3 BP Value at S1(K1), S4(K4) and S5(K5)**
- 4 Mode Setting Switch**  
Switch the mode between Normal/Setting and Random. \*
- 5 Mode Indicator**  
The lamp blinks in synchronization with the pulse rate.
- 6 Up/ Down button**  
Adjust BP values and pulse rates
- 7 NEXT button**  
Confirm a setting /proceed to the next step.
- 8 Volume adjuster**  
Adjust the sound volume of the Korotkoff's sounds

### Note

**\*Default setting BP Values of Normal/Setting is "Normal"**

Alarm sounds off when the cuff pressure is higher than the systolic blood pressure by 30mmHg or more.

Immediately after turning on the power, unexpected values may temporarily appear on the indicator. In this case, turn the power off and then on again to return to expected values. If the unexpected values persist, please contact our support desk.

## Training Modes

### Normal: default value of Normal/Setting Mode

Represent normal blood pressure to facilitate acquiring basic skills in BP measurement.

Pulse rate: 60 per minute

S1(K1):120mmHg, S2(K2)110mmHg, S3(K3) 100mmHg, S4(K4) 90mmHg, S5(K5)70mmHG

### User Setting: Normal/Setting Mode

Pulse rate and BP value at S(K)1, 4, 5 can be digitally controlled.

Pulse rate: select from 60, 90 or 120 per minute

BP value: S1 controllable, S2 automatic, S3 automatic S4 controllable, S5 controllable



**Note**

.....  
\*S2(K2) and S3(K3) are automatically set by the system.

\*Values are to be:  $S1(K1) \geq S4(K4) \geq S5(K5)$

When a value higher than S1 is entered in S1, the value of S1 is automatically adjusted to the value of S4

### Random Mode

The cases include seven blood pressure cases based on WHO classification, as well as a case of auscultatory gap and a case that lacks S5(K5).

Random mode replays preset cases: See page 12 for details.

**Note**

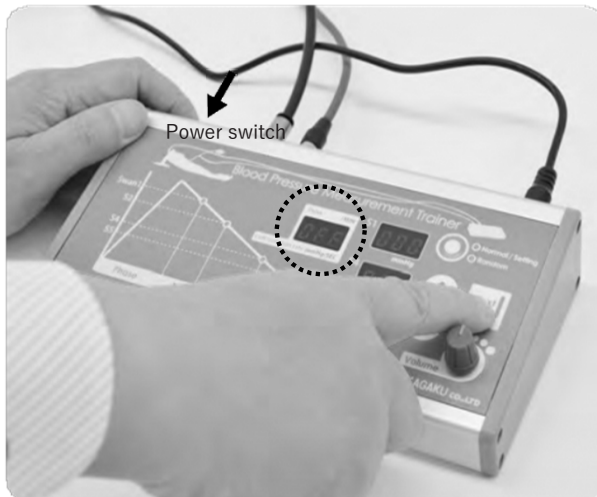
**\*Default setting BP values of Normal/Setting is "Normal"**

Alarm sounds off when the cuff pressure is higher than the systolic blood pressure by 30mmHg or more.

## Deactivate the Alarm

The alarm sounds can be turned off when necessary, such as in the setting of skills examination.

\*At the default setting, the alarm sounds off when the cuff pressure is higher than the systolic blood pressure by 30mmHg or more.



- ① While holding the NEXT button, turn on the power. Then the letters "OFF" shows in the window for the pulse /depressurization rate.



- ② Press the up"▲" button to confirm.

Now the system is ready to be used without alarm sounds.

### Note

The setting is cancelled by turning off the power and returns to the alarm sound "ON".

## Calibration

The synchronization between value shown on the controller panel and reading on the sphygmomanometer can be calibrated with following procedures.



- ① Place the cuff on the arm model with space of two fingers, noting that the artery sign comes over the artery of the model.



- ② Press the mode setting button and, at the same time, turn on the power switch. The indicator shows "CAL".



- ③ Pressurize the cuff to 200mmHg. Then Press the mode setting button. When the values at 200mmHg is calibrated, the indicator LED at S1(K1) is lit.

Normally, the simulator can be used just turning on the power, but the calibration is recommended when:

- Before the first use after the purchase
- After not being used for a long time
- Difference between the indicators and the reading on the Sphygmomanometer is noticed.



- ④ Depressurize the cuff to 100mHg.  
Then press ▲ of the up/down button.  
When the values at 100mHg is calibrated,  
the indicator LED at S2(K2) is lit.

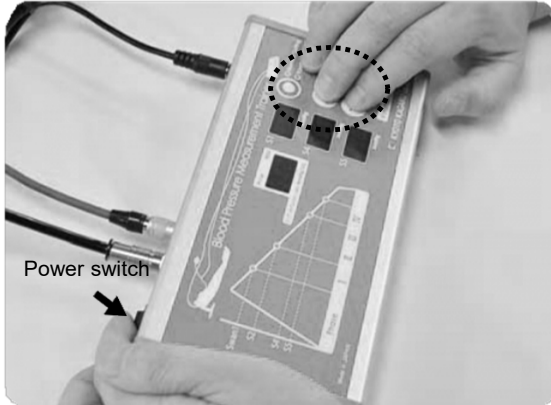


- ⑤ Depressurize the cuff to 40mHg.  
Then press ▼ of the up/down button.  
When the values at 100mHg is calibrated,  
the indicator LED at S4(K4) is lit.

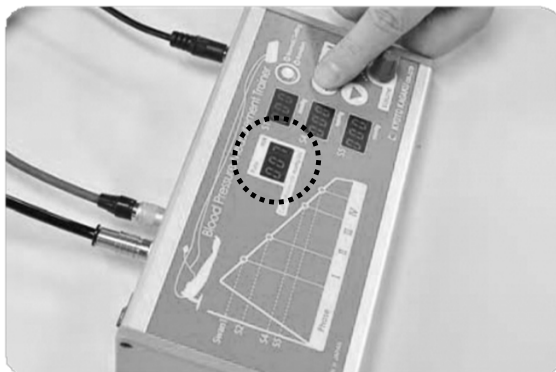
- ⑥ When the calibration of three points, 200/100/40 are done press NEXT to start using the simulator.

## Setting the Strength of Palpable Pulses

Strength of palpable pulses can be adjusted.



① While holding both up and down "▲""▼" buttons, turn on the power. The scale of the strength shows in the window for the pulse /depressurization rate.



② Then adjust the strength using the up and down buttons.

To make the pulse:

Stronger; press up "▲"

Weaker press down "▼"

Range of setting: 000 ~009  
(in 10 steps)

Default setting: 5



③ Press "Next" to confirm.

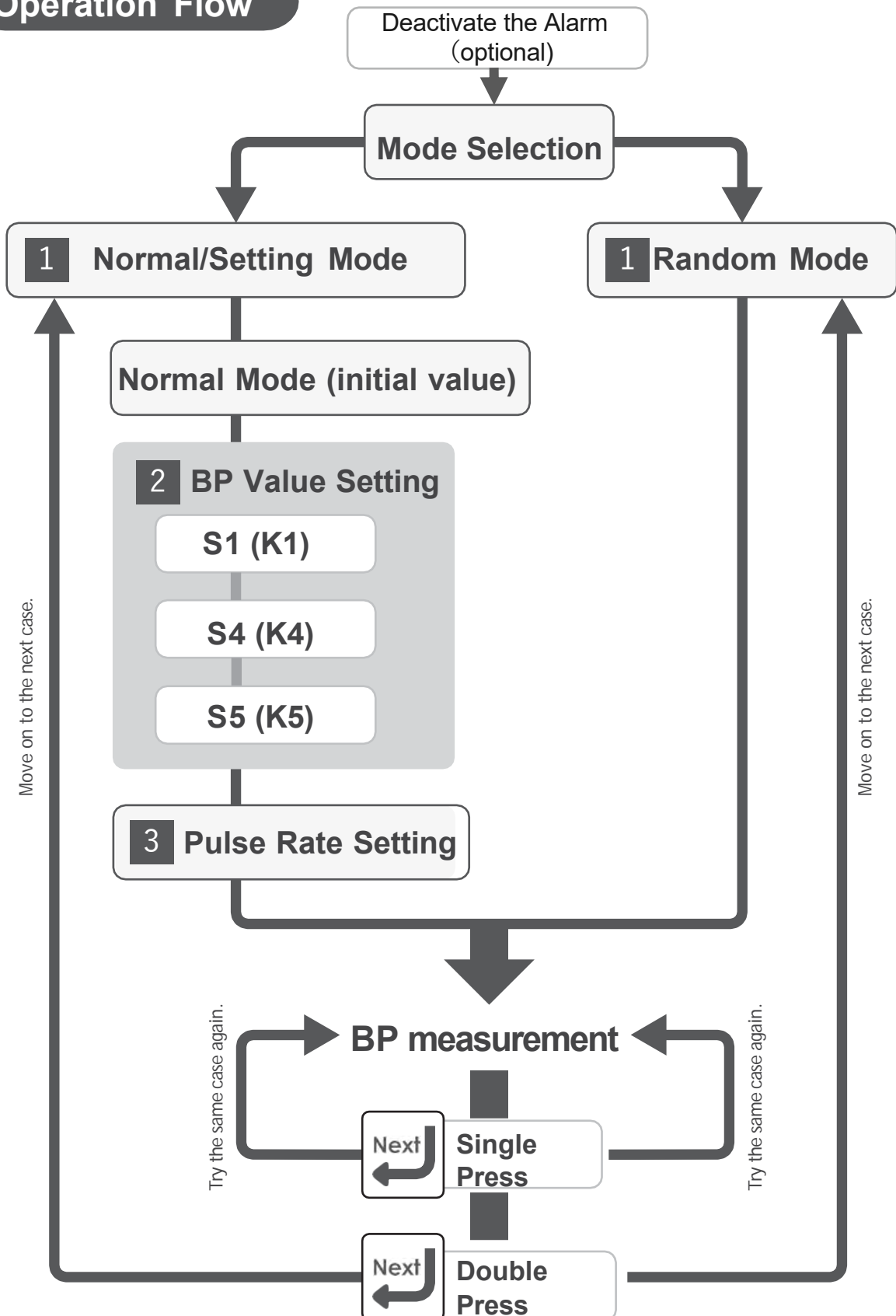
The saved setting of the strength of palpable pulses remain valid after turning off the power.

- The pulse might be perceived weak just after turning of the power. Take some moments for idling before starting the session.

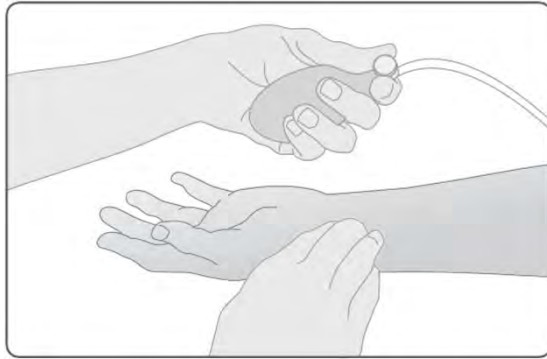
### Note

When the noise from the pulse pump disturb the auscultation of Korotokoff's sounds, weaken the strength of pulses.

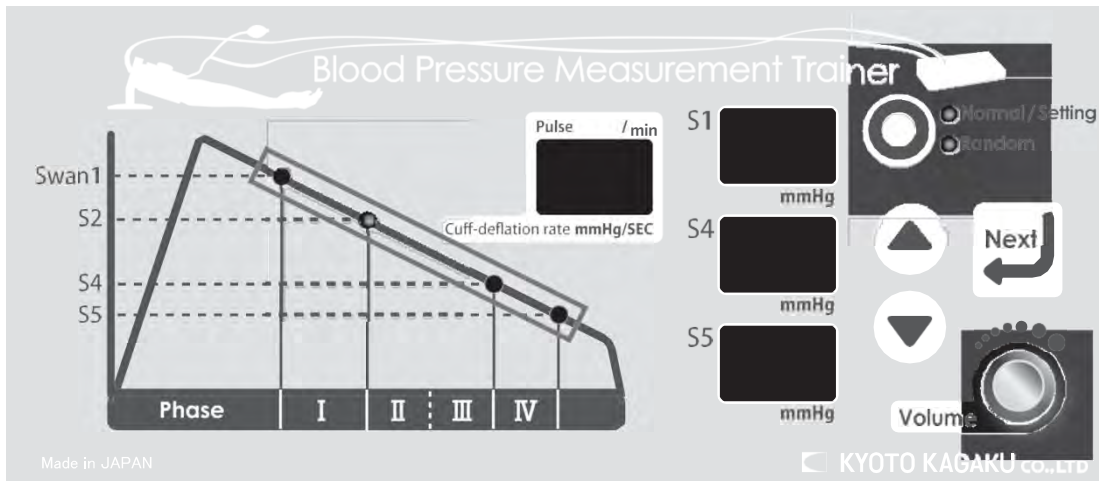
## Operation Flow



## Blood Pressure Measurement



- ① Find the systolic pressure by palpation.
- ② Pressurize the cuff up to the systolic pressure plus 20mmHg.  
\*140mmHg in initial setting.
- ③ Over pressurization (over 30mmHg above the systolic pressure) is warned by beeping sound.  
\*150mmHg in initial setting.
- ④ Deflate the cuff at the rate of 2-3mmHg/sec and read the value at each change in Korotkoff's sounds.  
Depressurizing rate is shown in the window.



LED lamps light in synchronization with the change of the Korotkoff's sound.  
(\*Korotkoff sounds changes at S3 too, although no LED lamp)

## Normal Mode



- ① Each time the power switch is turned on, the system is set in Normal mode.  
Pulse rate: 60 per minute

S1(K1):120mmHg, S2(K2)110mmHg,  
S3(K3) 100mmHg, S4(K4) 90mmHg,  
S5(K5)70mmHG

## Setting Flow

1 Select the User setting Mode

2 BP Value Setting

S1 (K1)

S4 (K4)

S5 (K5)

3 Pulse Rate Setting

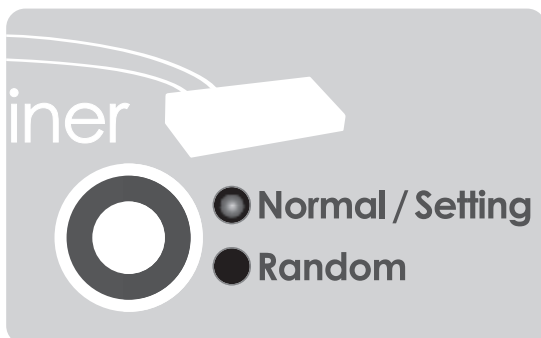
BP measurement

## BP Value Setting



Caution

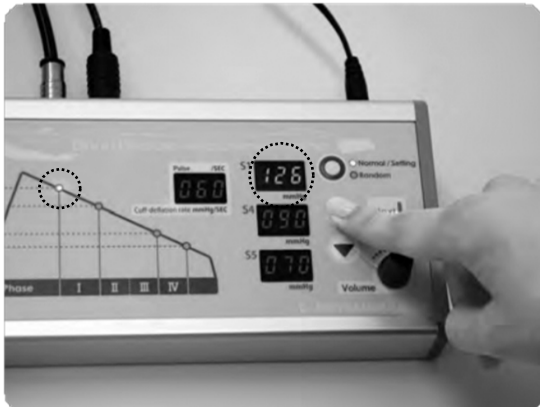
Before you start, ensure that the cuff is completely deflated. To avoid malfunction, values are not be able to be set with 10mmHg or more cuff pressure.



① Ensure that the indication lamp for Normal/Setting is lit.



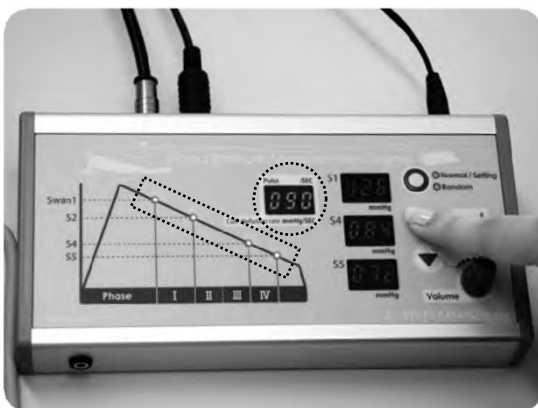
② Press "Next".



③ Set the value at S1(K1).  
The value can be changed by up/down button while the displayed numbers are blinking.  
Confirm the value by pressing "NEXT".

④ Likewise set the value at S4(K4) and S5(K5)  
Confirm the setting by pressing NEXT.

## Pulse Rate Setting

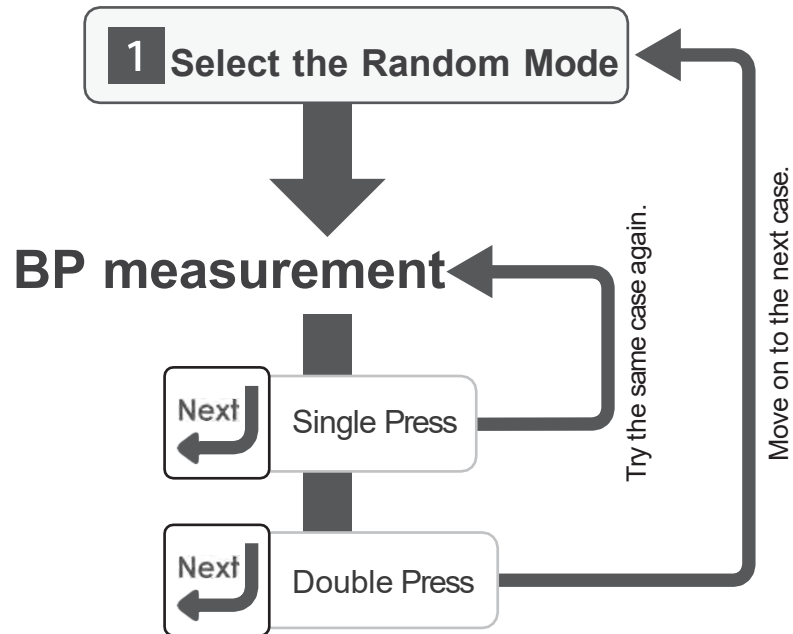


① Pulse rate can be changed when the all lamps are blinking.  
Select the value by up/down button and confirm it by "NEXT".

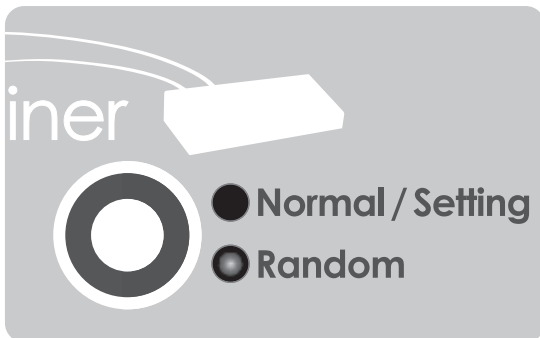
Now the model is ready for training.

To move onto another setting, press "NEXT" 2 times.

## Setting Flow



## Training with the Random Mode



- ① Ensure that the indication lamp for Random is lit.
- ② Start BP measurement.



- ③ To change the case after the measurement, press NEXT two times.  
To retry the same case, press NEXT once.  
To change the case before measurement, press NEXT once.



.....

\*All lamps light up when the "auscultatory gap" case is selected.  
\*Indicator LED for S4(K4) and S5(K5) may light up or blink simultaneously when "No Korotkoff V" case is selected.

### Preset Cases for Random Mode

The cases include seven blood pressure cases based on WHO classification, as well as a case of auscultatory gap and a case that lacks S5(K5).

The numerical are as follows.

Case	S1(K1)	S2(K2)	S3(K3)	S4(K4)	S5(K5)	Pulse /min	Auscultatory Gap
Desirable	100	90	80	70	60	60	×
Prehypertension	120	110	100	90	70	60	×
Hypertension Normal	130	118	106	94	86	60	×
Hypertension Stage I	148	134	120	106	98	90	×
Hypertension Stage II	168	149	131	112	110	90	×
Hypertension Stage Crisis	192	<del>173</del>	<del>155</del>	136	122	120	×
Isolated Systolic Hypertension	180	147	113	80	60	60	×
Auscultatory Gap	180			120	94	60	174 ~ 128
No Korotkoff V	134	113	93	72	0	90	×



## Caution

Don't mark on the model and other components with pen or leave printed materials contacted on their surface.  
Ink marks on the models will be irremovable.

- For inquiries and service, please contact your distributor or KYOTO KAGAKU CO., LTD.

## **KYOTO KAGAKU co.,LTD**

URL: <http://www.kyotokagaku.com> e-mail: [rw-kyoto@kyotokagaku.co.jp](mailto:rw-kyoto@kyotokagaku.co.jp)

---

### Worldwide Inquiries & Ordering

#### **Kyotokagaku Head Office and Factories:**

15 Kitanechoya-cho, Fushimi-ku, Kyoto, 612-8388, JAPAN

Tel: +81-75-605-2510 Fax: +81-75-605-2519

All American regions

#### **KYOTOKAGAKU AMERICA INC.**

3109 Lomita Boulevard, Torrance, CA 90505-5108, USA

Tel: 1-310-325-8860 Fax: 1-310-325-8867

Europe, Russia & Africa

#### **Kyoto Kagaku Europe GmbH**

De-Saint-Exupery-Str.10, 60549 Frankfurt, Germany

Tel:+49-69-5060-28160

---

The contents of the instruction manual are subject to change without prior notice.

No part of this instruction manual may be reproduced or transmitted in any form without permission from the manufacturer. Please contact manufacturer for extra copies of this manual which may contain important updates and revisions.

Please contact manufacturer with any discrepancies, typos, or mistakes in this manual or product feedback. Your cooperation is greatly appreciated.