Wrist Digital Blood Pressure Monitor

Model UB-533



Instruction Manual
Original
ENGLISH

Manuel d'instructions
Traduction
FRANÇAIS

Manual de Instrucciones
Traducción
ESPAÑOL

Manuale di Istruzioni
Traduzione
ITALIANO

使用手冊
翻譯
中 文

1WMPD4003121F

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Dear Customers

Congratulations on purchasing a state-of-the-art A&D blood pressure monitor, one of the most advanced monitors available today. Designed for ease of use and accuracy, this device will facilitate your daily blood pressure regimen.
We recommend that you read through this manual carefully before using the device for the first time.

Preliminary Remarks

- This device conforms to the European Directive 93/42 EEC for Medical Products. This is made evident by the CE0123 mark of conformity. (0123: The reference number to the involved notified body)
- The device is designed for use on adults, not newborns or infants.
- Environment for use. The device is for use to operate by yourself in the home healthcare environment.
- This device is designed to measure blood pressure and pulse rate of people for diagnosis.

Precautions

- Precision components are used in the construction of this device. Extremes in temperature, humidity, direct sunlight, shock or dust should be avoided.
- Clean the device with a dry, soft cloth or a cloth dampened with water and a neutral detergent. Never use alcohol, benzene, thinner or other harsh chemicals to clean the device.
- Avoid tightly folding the cuff for long periods, as such treatment may shorten the life of the components.
- The device is not water resistant. Prevent rain, sweat and water from soiling the device.
- Measurements may be distorted if the device is used close to televisions, microwave ovens, cellular telephones, X-ray or other devices with strong electrical fields.
- Used equipment, parts and batteries are not treated as ordinary household waste, and must be disposed of according to the applicable local regulations.
- When reusing the device, confirm that the device is clean.
- Do not modify the device. It may cause accidents or damage to the device.
- To measure blood pressure, the wrist must be squeezed by the cuff hard enough to temporarily stop blood flow through the artery. This may cause pain, numbness or a temporary red mark to the wrist. This condition will appear especially when measurement is repeated successively. Any pain, numbness, or red marks will disappear with time.

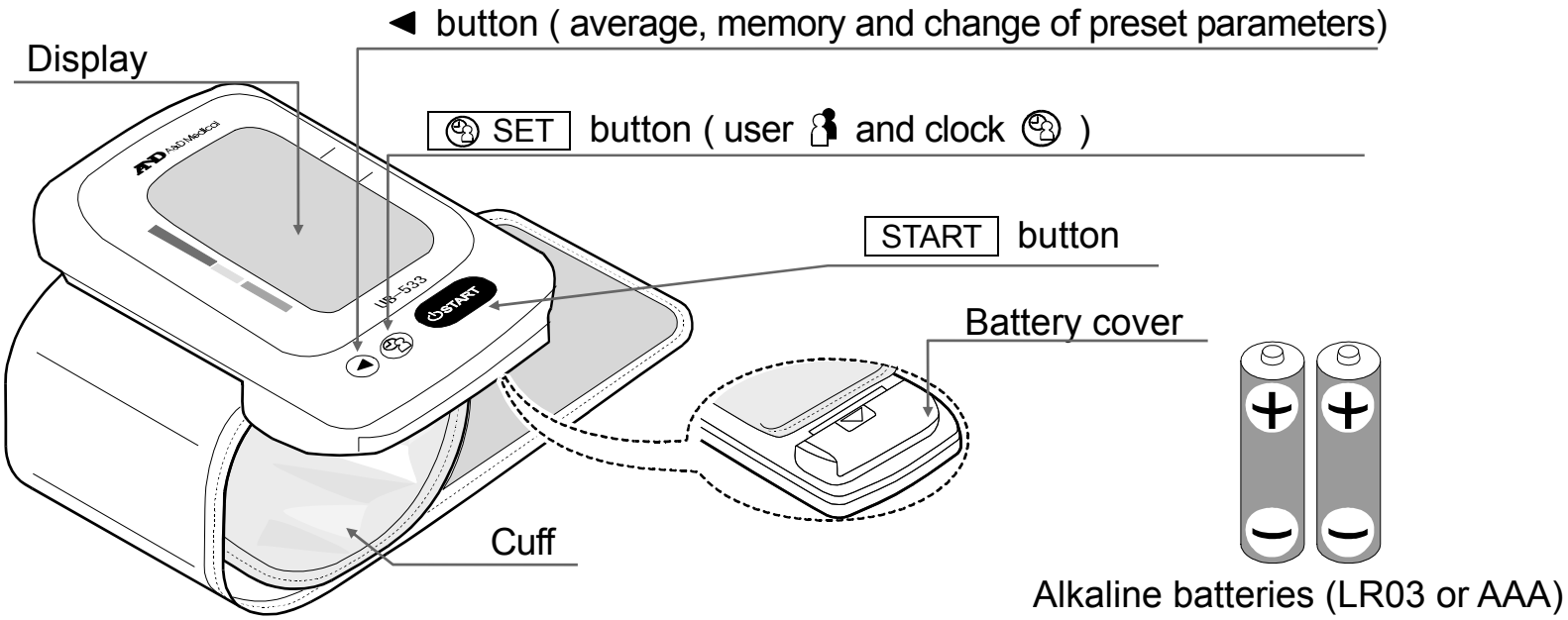
- ❑ Wireless communication device, such as home networking devices, mobile phones, cordless phones and their base stations, walkie-talkies can affect this blood pressure monitor. Therefore, a minimum distance of 30 cm should be kept from such devices.
- ❑ Measuring blood pressure too frequently may cause harm due to blood flow interference. Check that the operation of the device does not result in prolonged impairment of blood circulation, when using the device repeatedly.
- ❑ Clinical testing has not been conducted on newborn infants and pregnant woman. Do not use on newborn infants or pregnant woman.
- ❑ If you have had a mastectomy, please consult a doctor before using the device.
- ❑ Do not let children use the device by themselves and do not use the device in a place within the reach of infants. It may cause accidents or damage.
- ❑ There are small parts that may cause a choking hazard if swallowed by mistake by infants.
- ❑ Do not touch the batteries and the patient at the same time. That may result in electrical shock.
- ❑ In the case of single components failure enclosure of near cuff may become hot and potentially cause malfunction.
- ❑ Use of accessories not detailed in this manual may compromise safety.
- ❑ Should the battery short-circuit, it may become hot and potentially cause burns.
- ❑ Allow the device to adapt to the surrounding environment before use (about one hour).
- ❑ Do not inflate without wrapping the cuff around your wrist.

Contraindications

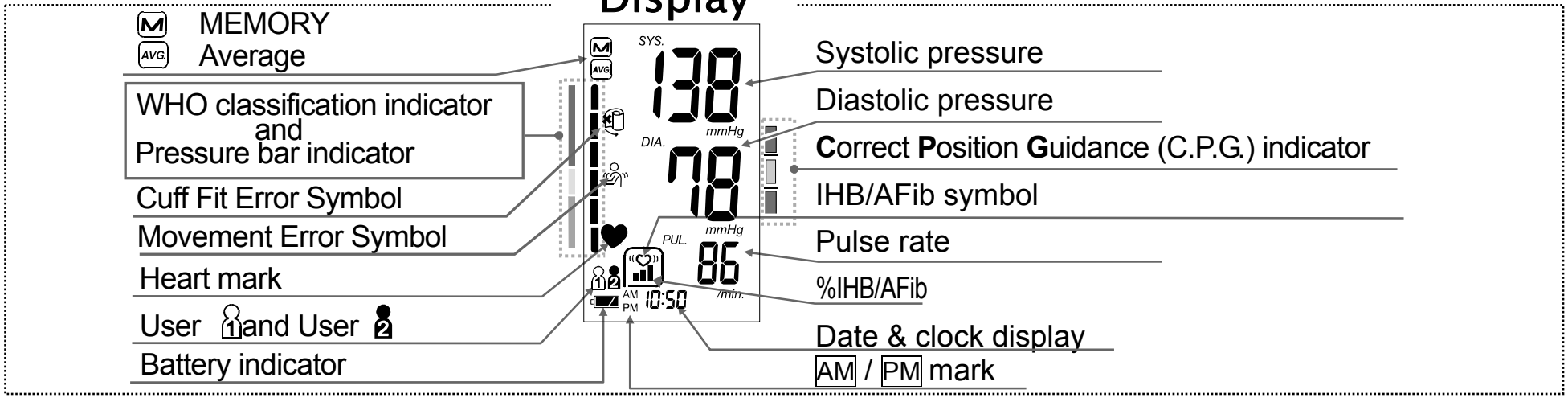
The following are precautions for proper use of the device.

- ❑ Do not apply the device to a wrist with other medical electrical equipment attached. The equipment may not function properly.
- ❑ People who have a severe circulatory deficit in the arm must consult a doctor before using the device to avoid medical problems.
- ❑ Do not self-diagnose the measurement results and start treatment by yourself. Always consult your doctor for evaluation of the results and treatment.
- ❑ Do not apply the device on a wrist with an unhealed wound.
- ❑ Do not apply the device on an arm receiving an intravenous drip or blood transfusion. It may cause injury or accidents.
- ❑ Do not use the device where flammable gases such as anesthetic gases are present. It may cause an explosion.
- ❑ Do not use the device in highly concentrated oxygen environments, such as a high-pressure oxygen chamber or an oxygen tent. It may cause a fire or explosion.

Parts Identification

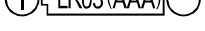


Display



Symbols

Symbols that are printed on the device case

Symbols	Function / Meaning
	Standby and Turn the device on
	Battery installation guide
	Direct current
SN	Serial number
2015 	Date of manufacture
	Type BF: Device and cuff are designed to provide special protection against electrical shocks.
CE 0123	EC directive medical device label
IP	International protection symbol
	WEEE label
	Manufacturer
EC REP	EU-representative
	Refer to instruction manual / booklet
	Keep dry

Symbols that appear on the display

Symbols	Function / Meaning / Recommended Action
	Appears while measurement is in progress. It blinks when the pulse is detected. Remain as still as possible.
	IHB/AFib symbol appears when an irregular heartbeat is detected. It may light when a very slight vibration like shivering or shaking is detected.
	Appears when a body or arm movement is detected. The reading may yield an incorrect value. Take another measurement. Remain still during measurement.
	Appears during measurement when the cuff is attached loosely. The reading may yield an incorrect value. Apply the cuff correctly, and take another measurement.
	Deleted rate of IHB/AFib in memory $\%\text{IHB/AFib} = \frac{\text{Number of detected IHB/AFibs in memory}}{\text{Total number}} \times 100\ \%$
	User 1 and user 2

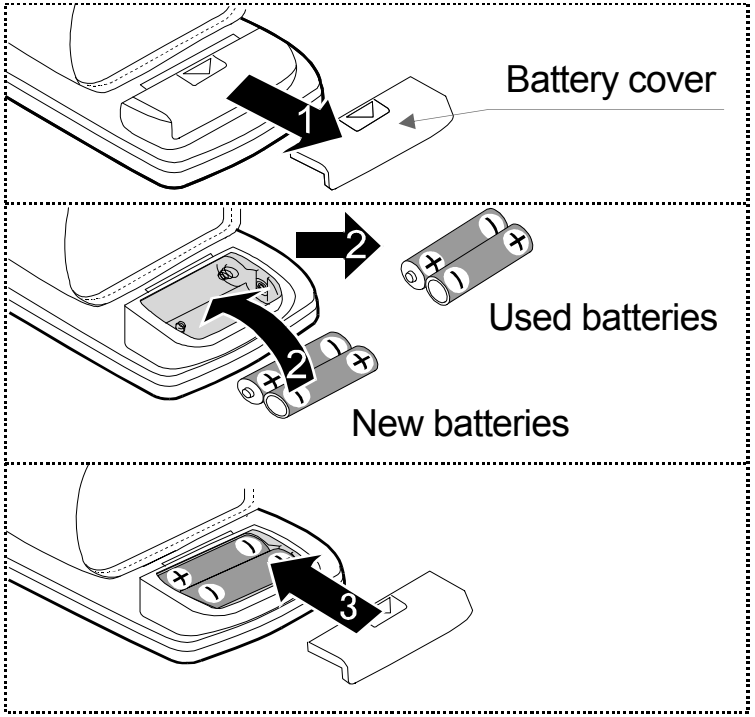
Symbols that appear on the display (continued)

Symbols	Function / Meaning	Recommended Action
M	Previous measurements stored in MEMORY	———
AVG.	Average data	———
	FULL BATTERY The battery power indicator during measurement	———
	LOW BATTERY The battery is low when it blinks	Replace all batteries with new ones when the indicator blinks.
E1 or E2	Unstable blood pressure due to movement during measurement	Take another measurement. Remain still during measurement.
	The systolic and diastolic values are within 10 mmHg of each other.	Apply the cuff correctly, and take another measurement.
E3	The pressure value did not increase during inflation.	
	The cuff is not applied correctly.	
E	PUL. DISPLAY ERROR The pulse is not detected correctly.	
EE	Blood pressure monitor internal error	Remove the batteries and press the START button, and then install the batteries again. If the error still appears, contact the dealer.
Eg		
SYS.	Systolic blood pressure in mmHg	———
DIA.	Diastolic blood pressure in mmHg	———
PUL	Pulse per minute	———
AM	Data taken between 4:00 and 9:59	———
PM	Data taken between 18:00 and 1:59	———

Using the Monitor

1. Installing / Changing the Batteries

1. Remove the battery cover.
2. Remove the used batteries and insert new batteries into the battery compartment as shown, taking care that the polarities (+ and −) are correct. Use only LR03 or AAA batteries.
3. Attach the battery cover.

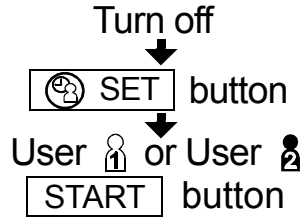


⚠CAUTIONS

- ❑ Insert the batteries as shown in the battery compartment. If installed incorrectly, the device will not work.
- ❑ When ▯◢ (LOW BATTERY mark) blinks on the display, replace all batteries with new ones. Do not mix old and new batteries. It may shorten the battery life, or cause the device to malfunction.
- ❑ ▯◢ (LOW BATTERY mark) does not appear when the batteries are drained.
- ❑ The battery life varies with the ambient temperature and may be shorter at low temperatures. Generally, two new LR03/AAA batteries will last approximately for three months when used twice for measurement each day.
- ❑ Use the specified batteries only. The batteries provided with the device are for testing monitor performance and may have a limited life.
- ❑ Remove the batteries if the device is not to be used for a long period of time. The batteries may leak and cause a malfunction.
- ❑ When removing the batteries, preset parameters (of clock, user and my C.P.G.) are reset.

2. Selecting a User

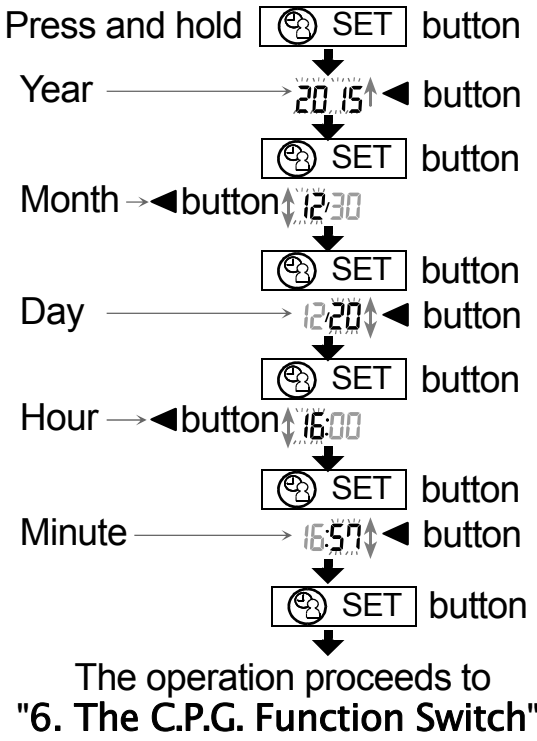
1. Press the [SET] button when turning off the device. The indicator 1 or 2 is blinking.
2. Select a user from user 1 and user 2 using the [SET] button.
   Press the [START] button to turn off the device.
   After three minutes of non-operation, the device will turn off automatically.



3. Adjusting the Built-in Clock Before Use

1. Press and hold the [SET] button until the year starts blinking.
2. Select the year using the ◄ button.
   Press the [SET] button to set the current year and move to month/day selection.
   The date can be set anywhere between the years 2010 and 2059.
3. Select the month using the ◄ button.
   Press the [SET] button to set the current month and move to day selection.
4. Select the day using the ◄ button.
   Press the [SET] button to set the current day and move to hour/minute selection.
5. Select the hour using the ◄ button.
   Press the [SET] button to set the current hour and move to minute selection.
6. Select the minute using the ◄ button.
   Press the [SET] button to proceed to "**6.The C.P.G.Function Switch**".

- ❑ Holding down the ◄ button will change the value continuously.
- ❑ Pressing the [START] button will turn the device off anytime.

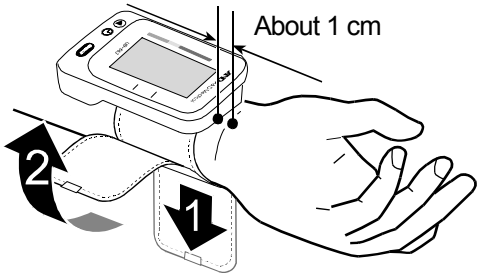


Notes: After three minutes of non-operation, the device will turn off automatically. When the clock has not been set, [-/- -] is indicated for the clock display. When removing the batteries, preset parameters (of clock, user and my C.P.G.) are reset.

4. Applying the Cuff

1. Wrap the cuff around your wrist about 1 cm above your hand as shown in the figure at the right.
2. Apply the cuff tightly using the Velcro strip.

   Note: For accurate measurements, apply the cuff tightly and measure on a bare wrist.



5. How to Take Accurate Measurements

For the most accurate blood pressure measurement:

- ❑ Remain still and keep quiet during measurement.
- ❑ Sit down in a comfortable position. Place your elbow on a table with your palm facing upward and the cuff is at the same level as your heart.
- ❑ Relax for about five to ten minutes before measurement. If you are excited or depressed by emotional stress, the measurement will reflect this stress as a higher (or lower) than normal blood pressure reading and the pulse reading will usually be faster than normal.
- ❑ Try to measure your blood pressure at about the same time every day.
- ❑ An individual's blood pressure varies constantly, depending on what they are doing, what they have eaten and what they drink can have a very strong and rapid effect on your blood pressure.
- ❑ Do not measure immediately after physical exercise or a bath. Rest for twenty or thirty minutes before taking the measurement.
- ❑ Do not cross your legs. Keep your feet flat on the floor and straighten your back.
- ❑ This device bases its measurements on the heartbeat. If you have a very weak or irregular heartbeat, the device may have difficulty determining your blood pressure.
- ❑ Should the device detect a condition that is abnormal, it will stop the measurement and display an error symbol. See page 7 for the description of symbols.
- ❑ This blood pressure monitor is intended for use by adults. Consult with your physician before using this device on a child. A child should not use this device unattended.
- ❑ The automatic blood pressure monitor's performance may be affected by excessive temperature or humidity, or altitude.

6. The C.P.G. Function Switch

- ❑ Refer to page 18 for the C.P.G. function that will indicate the proper angle so that the height of the cuff is the same level as your heart.

1. After step 6 in page 9, press the ◄ button to select either "on" or "oFF" concerning the C.P.G. function.
2. Press the SET button to store the selection.
3. ❑ If you do not use my C.P.G. function, press START button to turn off. Proceed to "**8. Measurement**".
   ❑ If you use my C.P.G. function, proceed to "**7. Selecting the C.P.G. and my C.P.G.**".

7. Selecting the C.P.G. and my C.P.G.

- ❑ You can select an indicator either the C.P.G. function or my C.P.G. .
- ❑ Preset a proper posture (wrist angle) in memory if you use the my C.P.G. .

1. Adjust and keep the height of the blood pressure monitor to the same level as your heart using your wrist angle.
2. Select an indicator using the ◄ button.

   Indicator ▯ ..... The C.P.G. function is used. (my C.P.G. function : **OFF**)
   Data of my C.P.G. is deleted. Proceed to step 3.

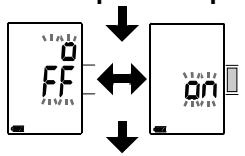
   Indicator ▯ ..... my C.P.G. function is **ON** and the current angle is stored when switched to the indicator ▯. Proceed to step 3.

3. Press the START button to turn off the device.

   Note: ❑ When removing the batteries, preset parameters (of clock, user and my C.P.G.) are reset.
   ❑ Select a user from user 1 and user 2 using the SET button.

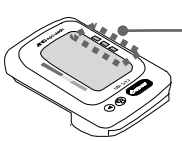
From step 6 of page 9

The C.P.G. function
◄ button



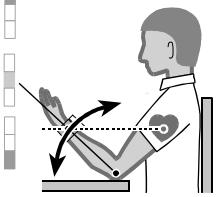
Press the SET button

To "**7. Selecting the C.P.G. and my C.P.G.**" or START button and to "**8. Measurement**"



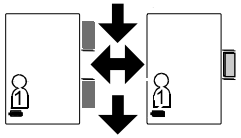
Step 1 [Adjust and keep the height of the device (wrist angle)]

HIGH (Orange light)
Correct Height (Blue light)
LOW (Orange light)



Step 2 [Select The C.P.G or my C.P.G]

The C.P.G. function
◄ button
Ex.: user 1



My C.P.G.

START button and to "**8. Measurement**"

8. Measurement

During measurement, it is normal for the cuff to feel very tight.

9. After Measurement

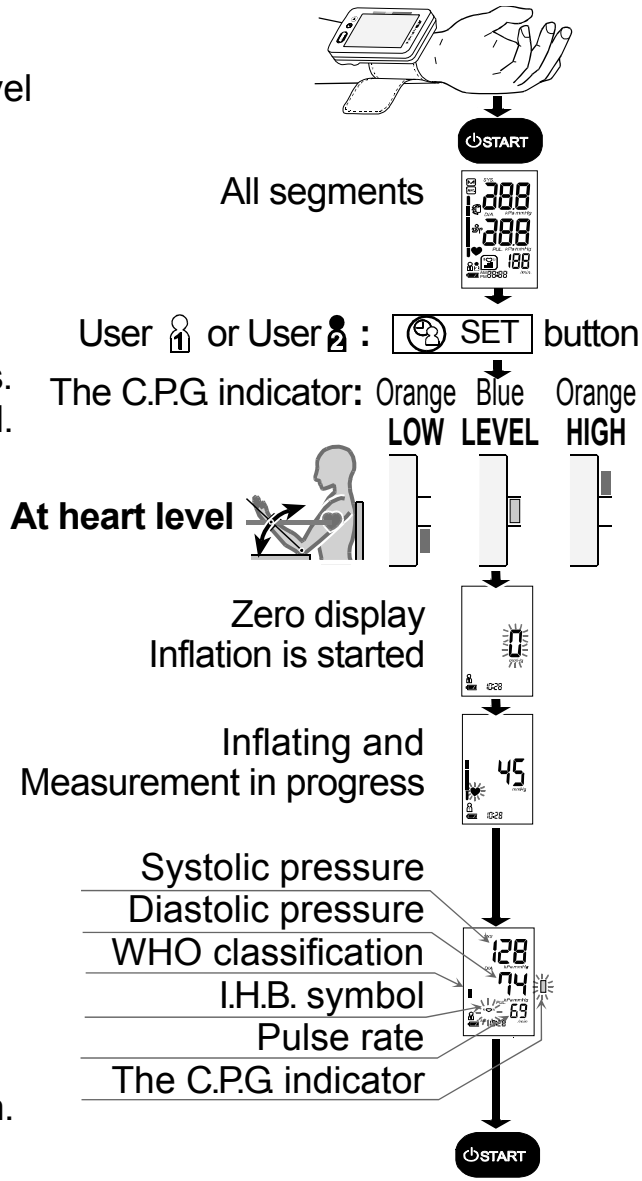
While readings are displayed, if you press the START button to turn the device off, new readings are stored in memory.
While readings are displayed, if you press the ◄ button to turn the device off, new readings are not stored.
Remove the cuff and record your data.

Notes: The device is provided with an automatic power shut-off function which stores the current data in the memory and turns the device off automatically one minute after measurement. Allow at least three minutes between measurements on the same person.

Measurements

Note: The UB-533, once used, will provide an inflation appropriate to the user.

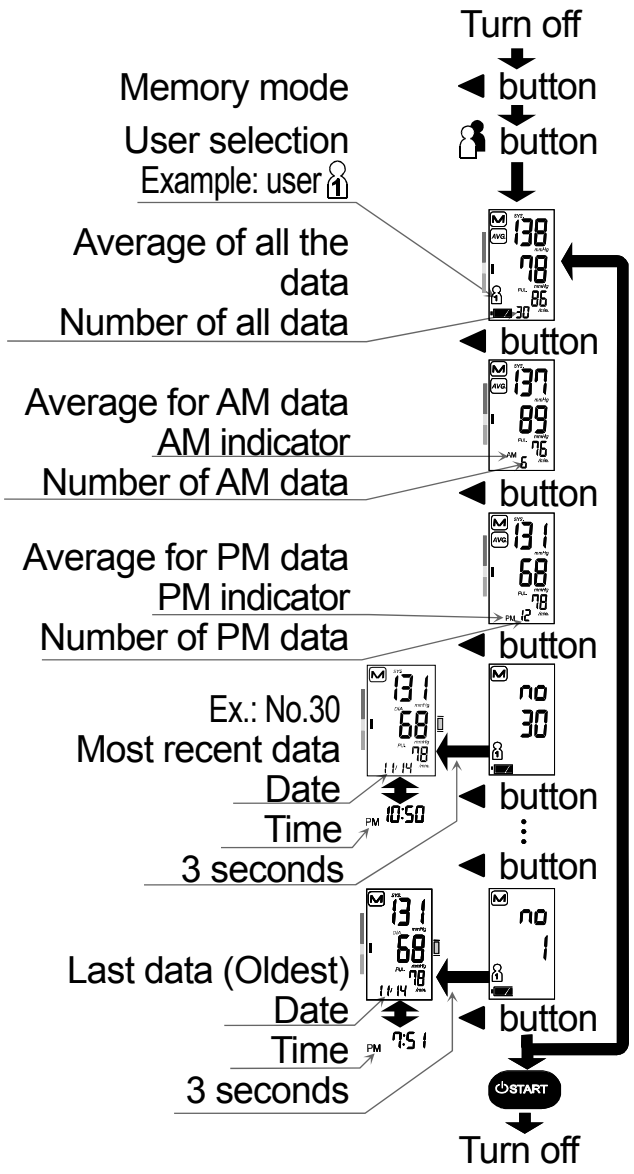
1. Wrap the cuff around your wrist. Sit comfortably with the cuff at the same level as your heart and relax.
2. Press the START button. All of the display segments are displayed.
3. Select a user from user 1 and user 2 using the SET button immediately. Adjust and keep the height of the cuff (with blue light) to the same level as your heart using the C.P.G. indicator.
   Notes: If you do not use user selection, wait for the inflation for several seconds.
   If you do not use the C.P.G. function, the C.P.G. indicator is not displayed.
4. Zero (0) is displayed blinking briefly. Then the display changes, as measurement begins. The cuff starts to inflate. It is normal for the cuff to feel very tight. The measurement starts automatically when inflation starts, and the ♥ (heart mark) blinks.
   Note: If you wish to stop inflation at any time, press the START button again.
5. When the measurement is complete, the device displays readings (of the systolic and diastolic pressure readings, pulse rate, WHO classification, I.H.B. symbol and C.P.G. indicator). While readings are displayed, the date and time are displayed alternately. The cuff exhausts the remaining air and completely deflates automatically.
   Note: If you do not want to store new readings in memory, press the ◄ button while readings are displayed.
6. Press the START button again to turn the device off. Remove the cuff.
   Notes: The device is provided with an automatic power shut-off function.
   Allow at least three minute between measurements on the same person.



Recalling the Memory Data

Note: This device stores the last 60 measurements in memory.

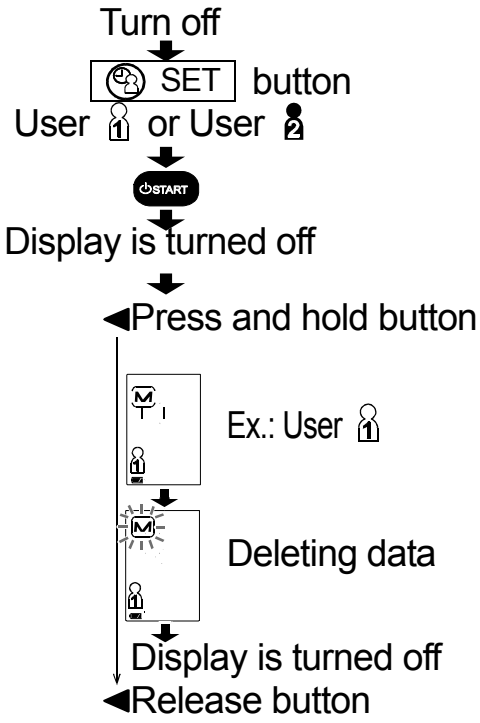
1. Press the ◄ button when turning the device off.
   The average of all measurements and the number of data are displayed.
   If no data, “0” is displayed. Press the ◄ or START button to turn the device off.
2. Use the following buttons to display data (of number and measurement data).
   - ❑ Select a user from user 1 and user 2 using the SET button.
     The device displays the average of all measurements and the number of data are displayed.
   - ❑ Pressing the ◄ button each time , the device displays as follows:
     - ■ Average data of all AM (morning) measurements taken between 4:00 and 9:59. In the example, If no data, -- is displayed.
     - ■ Average data of all PM (evening) measurements taken between 18:00 and 1:59.
     - ■ Data (of number and measurement data).
       The device displays in order from most recent data. The date and time are displayed alternately while displaying the measurement data.
       In the example: No.30 & data → No.29 & data → ··· → No.01 & data.
3. If you press the ◄ button after oldest data is displayed, the device proceeds to step 1, the average of all measurements and the number of data are displayed.
4. Press the START button to turn the device off.
   After one minute of non-operation, the device will turn off automatically.



Deleting Data Stored in Memory

1. Select a user from user 1 and user 2 using the SET button. Turn off the device using the START button.
2. Press and hold the ◄ button until turning off the device automatically. The device displays a user icon and the M mark, deletes data stored in memory while blinking the M mark and turns off automatically.

   Note: This operation will delete specified user data stored in memory. You cannot select which data to delete.



What Is The IHB/AFib Indicator?

When the monitor detects an irregular rhythm during the measurements, the IHB/AFib indicator will appear on the display with the measurement values.
Note: We recommend contacting your physician if you see this IHB/AFib indicator frequently.

What Is The AFib?

The heart contracts due to electrical signals occurring in heart and sends blood through the body. Atrial fibrillation (AFib) occurs when the electrical signal in the atrium becomes confused and leads to disturbances in the pulse interval. AFib can cause blood to stagnate in the heart, which can easily create clots of blood, a cause of stroke and heart attack.

% IHB/AFib

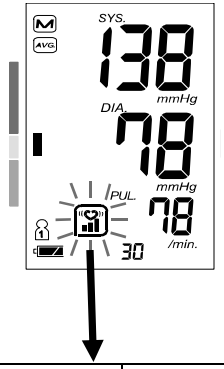
%IHB/AFib is displayed as frequency of IHB detected.
IHB/AFib can detect not only noises such as physical movement but also an irregular heartbeat.Therefore,we recommend contacting your physician if %IHB/AFib level is high.

$$\%\text{IHB/AFib} = \frac{\left[\begin{array}{c}\text{Number of detected}\\ \text{IHB/AFib s in memory}\end{array}\right]}{\left[\text{Total number}\right]} \times 100\ \%$$

Display of %IHB/AFib: %IHB/AFib is displayed when displaying average values.

%IHB/AFib is not displayed when the memory number is six or less.

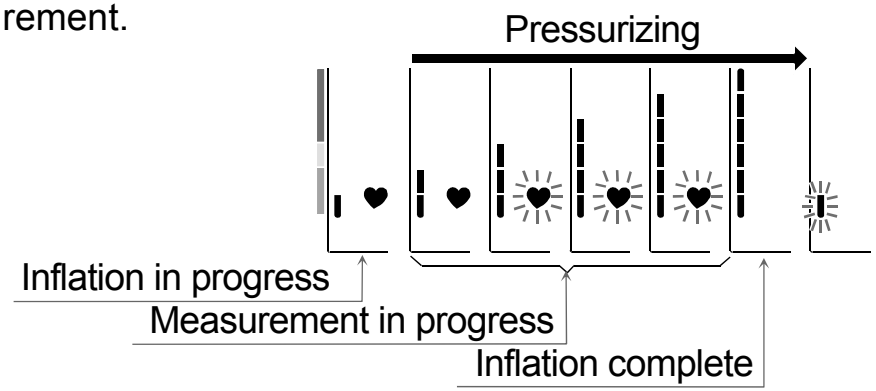
Average value display



Level 0 %IHB/AFib=0	Level 1 %IHB/AFib=1 - 9	Level 2 %IHB/AFib=10 - 24	Level 3 %IHB/AFib=25 - 100
Not displayed			

Pressure Bar Indicator

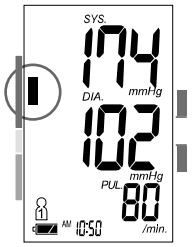
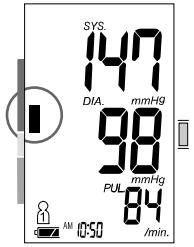
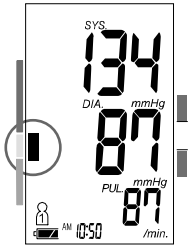
The indicator monitors the progress of pressure during measurement.



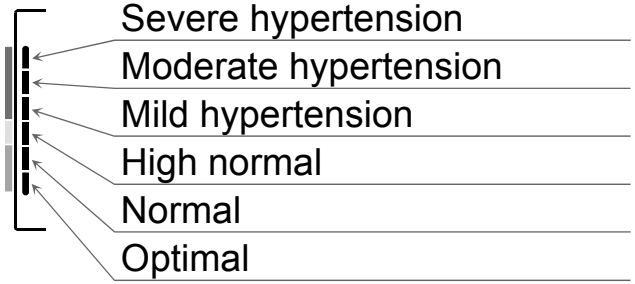
WHO Classification Indicator

Each six segments of the bar indicator correspond to the WHO blood pressure classification is described on 20 page.

Example

Moderate hypertension	Mild hypertension	High normal
		

WHO Classification Indicator

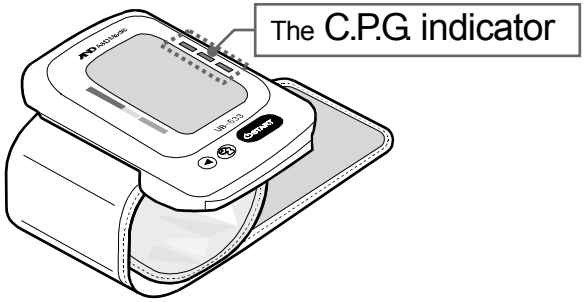


▮: The indicator displays a segment, based on the current data, corresponding to the WHO classification.

The C.P.G. Indicator

❑ The C.P.G. Indicator

The C.P.G. (**C**orrect **P**osition **G**uidance) indicator is the function to inform a difference between the height (wrist angle) of the blood pressure monitor and your cardiac height in the correct posture (Example: sitting posture, height of table and chair, etc.) during the measurement. The indicator can be used to get more stable measurement condition.



❑ The C.P.G. Indicator

The height of the blood pressure monitor is lower than your heart.	**The height of the blood pressure monitor is the same level as your heart.**	**The height of the blood pressure monitor is higher than your heart.**
Low angle **Incorrect Height**	Proper angle **Correct Height**	High angle **Incorrect Height**
The C.P.G. indicator : **LOW**	The C.P.G. indicator : **LEVEL**	The C.P.G. indicator : **HIGH**

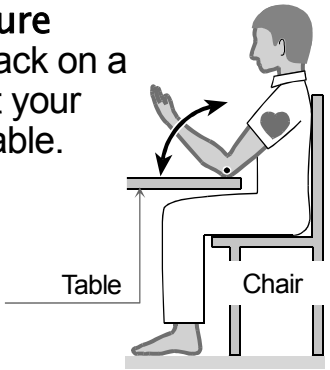
The position of the device is checked both before and after measurement If both checks show a correct measurement position the LEVEL indicator is lit(blue). For all other measurements an indicator for LOW or HIGH measurement position will be lit (orange).

❑ How To Use My C.P.G.

The C.P.G. function can be used with proper posture (wrist angle) in the majority of measurements. If you need to change the posture to adjust the height so that the height of the blood pressure monitor is the same level as your cardiac height, you can use my C.P.G. function to store a personal posture. Preset your angle to my C.P.G. function before measurement.

❑ Proper Posture

Sit straight back on a chair and put your elbow on a table.



❑ The Indicator During Measurement And Recalling Memory

The C.P.G. indicator can be displayed at the beginning of measurement and is included in data stored in the memory. Adjust and keep the angle during measurement.

About Blood Pressure

What is Blood Pressure?

Blood pressure is the force exerted by blood against the walls of the arteries. Systolic pressure occurs when the heart contracts. Diastolic pressure occurs when the heart expands. Blood pressure is measured in millimeters of mercury (mmHg). One's natural blood pressure is represented by the fundamental pressure, which is measured first thing in the morning while one is still at rest and before eating.

What is Hypertension and How is it Controlled?

Hypertension, an abnormally high arterial blood pressure, if left unattended can cause many health problems including stroke and heart attack. Hypertension can be controlled by altering lifestyle, avoiding stress, and with medication under a doctor’s supervision.

To prevent hypertension or keep it under control:

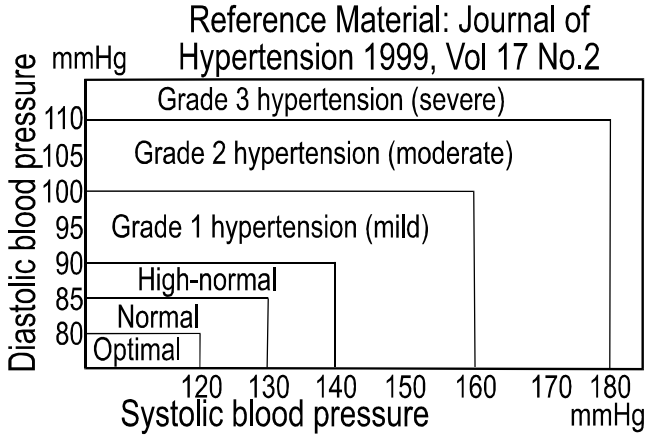
- ❑ Do not smoke
- ❑ Reduce salt and fat intake
- ❑ Maintain proper weight
- ❑ Exercise regularly
- ❑ Have regular physical checkups

Why Measure Blood Pressure at Home?

Blood pressure measured at a clinic or doctor's office may cause apprehension and can produce an elevated reading, 25 to 30 mmHg higher than that measured at home. Home measurement reduces the effects of outside influences on blood pressure readings, supplements the doctor's readings and provides a more accurate, complete blood pressure history.

WHO Blood Pressure Classification

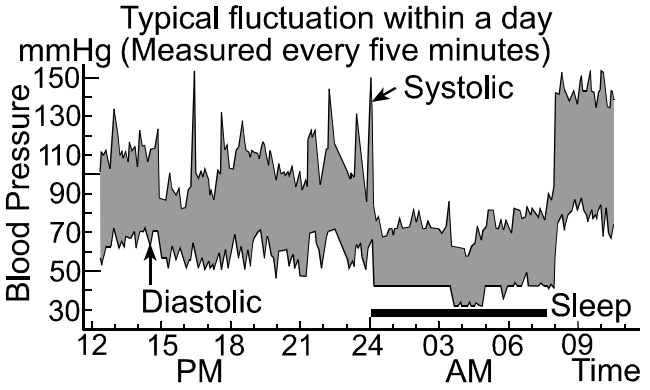
Standards to assess high blood pressure, without regard to age, have been established by the World Health Organization (WHO), as shown in the chart at the right.



Blood Pressure Variations

An individual's blood pressure varies greatly on a daily and seasonal basis. It may vary by 30 to 50 mmHg due to various conditions during the day. In hypertensive individuals variations are even more pronounced. Normally, the blood pressure rises while at work or play and falls to its lowest levels during sleep. So, do not be overly concerned by the results of one measurement.

Take measurements at the same time every day using the procedure described in this manual to get to know your normal blood pressure. Regular readings give a more comprehensive blood pressure history. Be sure to note the date and time when recording your blood pressure. Consult your doctor to interpret your blood pressure data.



Troubleshooting

Problem	Possible Reason	Recommended Action
Nothing appears in the display, even when the device is turned on.	Batteries are drained.	Replace all batteries with new ones.
	Battery terminals are not in the correct position.	Reinstall the batteries with negative and positive terminals matching those indicated in the battery compartment.
The cuff does not inflate.	Battery voltage is too low.  (LOW BATTERY mark) blinks. If the batteries are drained completely, the mark does not appear.	Replace all batteries with new ones.
The device does not measure. Readings are too high or too low.	The cuff is not applied properly.	Apply the cuff correctly.
	You moved your wrist or body during the measurement.	Make sure you remain very still and quiet during the measurement.
	The cuff position is not correct.	Sit comfortably and still. Place your arm on a table with your palm facing upward and the cuff at the same level as your heart.
	———	If you have a very weak or irregular heat beat, the device may have difficulty in determining your blood pressure.
Other	The value is different from that measured at a clinic or doctor's office.	See the section "Why Measure Blood Pressure at Home?".
	———	Remove the batteries. Place them back properly and try measurement again.

Note: If the actions described above do not solve the problem, contact the dealer. Do not attempt to open or repair this product yourself, as any attempt to do so will make your warranty invalid.

Maintenance

Do not open the device. It uses delicate electrical components and an intricate air unit that could be damaged. If you cannot fix the problem using the troubleshooting instructions, contact the authorized dealer in your area or our customer service department. The A&D customer service will provide technical information, spare parts and units to authorized dealers.

The device was designed and manufactured for a long service life. However it is generally recommended to have the device inspected every 2 years, to ensure proper functioning and accuracy. Please contact the authorized dealer in your area or A&D for maintenance.

Technical Data

Type	UB-533
Measurement method	Oscillometric measurement
Measurement range	Pressure: 0 – 299 mmHg Systolic pressure: 60 – 279 mmHg Diastolic pressure: 40 – 200 mmHg Pulse: 40 – 180 beats / minute
Measurement accuracy	Pressure: ±3 mmHg Pulse: ±5 %
Power supply	2 x 1.5 V alkaline batteries (LR03 or AAA)
Number of measurements	Approx. 200 measurements, when AAA alkaline batteries are used, with pressure value of 170 mmHg at room temperature of 23 °C.
Wrist circumference	13.5 – 21.5 cm
Classification	Internally powered ME equipment (Continuous operation mode)
Applied part	Cuff Type BF

Useful life	Device: 5 years (when used six times a day)
Clinical test	According to ISO81060-2：2013
EMD	IEC 60601-1-2: 2014
Memory	Last 60 measurements each for user 1 and user 2.
Operating conditions	+10 to +40 °C / 15 to 85 %RH / 800 to 1060 hPa
Transport / storage conditions	-20 to +60 °C / 10 to 95 %RH / 700 to 1060 hPa
Dimensions	Approx. 56 [W] x 88 [H] x 21.5 [D] mm
Weight	Approx. 95 g, excluding the batteries
Ingress protection	IP20

Note: Specifications are subject to change for improvement without prior notice.
IP classification is the degrees of protection provided by enclosures in accordance with IEC 60529. This device is protected against solid foreign objects of 12 mm diameter and greater such as a finger. This device is not protected against water.

MEMO

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