

# Wrist Digital Blood Pressure Monitor

Model UB-543

Instruction Manual

Original

**ENGLISH** 



Traduction

**FRANÇAIS** 

Manual de Instrucciones

Traducción

**ESPAÑOL** 

Manuale di Istruzioni

Traduzione

**ITALIANO** 

使用手册翻譯

中文



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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**

- □ 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.
- □ Wireless communication devices, 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.
- □ 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.
	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.
	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.
	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 touch the battery 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.
	Do not inflate without wrapping the cuff around your wrist.
C	ontraindications
Th	e 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** button ( average, memory and change of preset parameters) Display button ( user selection and clock ) START button Battery cover Carrying case Cuff Alkaline batteries (LR03 or AAA) Display Systolic pressure WHO classification indicator and Diastolic pressure Pressure bar indicator Correct Position Guidance (C.P.G.) indicator Heart mark IHB/AFib symbol User 1 and User 2 Pulse rate **MEMORY** AM 10:50 Date & clock display Average AM / PM mark **Battery indicator**

English 4

# Symbols

Symbols that are printed on the device case

Symbols	Function / Meaning
Ф	Standby and Turn the device on
⊕{ LR03 (AAA) —	Battery installation guide
===	Direct current
SN	Serial number
2013سا	Date of manufacture
*	Type BF: Device and cuff are designed to provide special protection against electrical shocks.
<b>C</b> € <sub>0123</sub>	EC directive medical device label
	International protection symbol
<u> Z</u>	WEEE label
	Manufacturer
EC REP	EU-representative
<b>③</b>	Refer to instruction manual / booklet
<b>3</b>	User selection
<del>//</del>	Keep dry

Symbols that appear on the display

Symbols	Function / Meaning / Recommended Action	
The heart mark appears while measurement is in progress. It blinks when the pulse is detected. Remain as still as possible.		
(( <u>\(\)</u> ))	IHB/AFib symbol appears when an irregular heartbeat is detected. It may light when a very slight vibration like shivering or shaking is detected.	

# Symbols

Symbols that appear on the display (continued)

Symbols	Function / Meaning	Recommended Action
M	Previous measurements stored in MEMORY	
AVG.	Average data	
r -	FULL BATTERY	
·	The battery power indicator during measurement	
[ <b>_</b>	LOW BATTERY	Replace all batteries with new ones
<u> </u>	The battery is low when it blinks	when the indicator blinks.
Err Err	Unstable blood pressure due to movement during measurement	Try the measurement again. Remain very still during the measurement.
	The systolic and diastolic values are within 10 mmHg of each other.	
Erc	The pressure value did not increase during inflation.	Fasten the cuff correctly, and try the
3	The cuff is not applied correctly.	measurement again.
E	PUL. DISPLAY ERROR	and a surface an
	The pulse is not detected correctly.	
Err		Remove the batteries and press the
Errg	Blood pressure monitor internal error	START button, and then install the batteries again. If the error still appears, contact the dealer.
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	

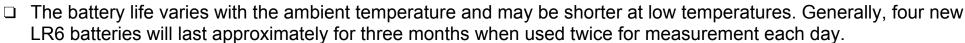
# Using the Monitor

## 1. Installing / Changing the Batteries

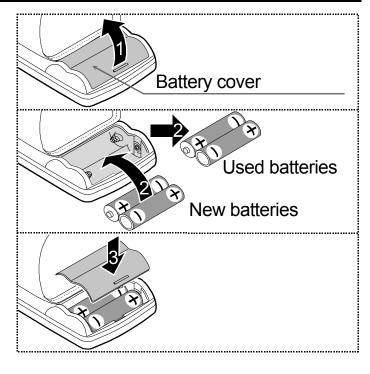
- 1. Remove the battery cover.
- 2. Remove the used batteries and insert new batteries into the battery compartment as shown, taking care that the polarities (+) and (-) are correct. Use only LR03 or AAA batteries.
- 3. Attach the battery cover.

### **!**CAUTIONS

- ☐ Insert the batteries as shown in the battery compartment. If installed incorrectly, the device will not work.
- □ □ □ (LOW BATTERY mark) does not appear when the batteries are drained.



- ☐ 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.



# Using the Monitor

## 2. Selecting a User

- 1. Press the SET button when turning off the device. The indicator  $\hat{\mathbf{a}}$  or  $\hat{\mathbf{a}}$  is blinking.
- 2. Select a user from user and user using the START button to turn off the device.

After three minutes of non-operation, the device will turn off automatically.

# Turn off SET button User or user START button

## 3. Adjusting the Built-in Clock Before Use

- 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 ④ 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 ⑤ SET button to proceed to "4. Applying the Cuff".
- □ 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.

Press and hold SET button

Year button

Month → button

Day SET button

Day SET button

Hour → button

SET button

USET button

Discription

Winute button

SET button

Discription

The operation proceeds to "6.

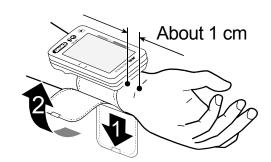
English 8

# **Using the Monitor**

## 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. Fasten the cuff tightly using the Velcro strip.

Note: For proper measurements, fasten the cuff tightly and measure on a bare wrist.



#### 5. How to Take Accurate Measurements

r 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. Raise your hand so that 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 6 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.
CHIIU. A CHIIU SHOUIU HOL USE LHIS UEVICE UHALLEHUEU.

#### 6. The C.P.G. Function Switch

- □ Refer to page 16 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 8, press the ◀ button to select either "an" or "aFF" 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**)

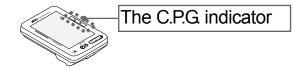
    Data of my C.P.G. is deleted. Proceed to step 3.
  - Indicator .....my C.P.G. function is **ON** and the current angle is stored when switched to the indicator ..... Proceed to step 3.
- 3. Press the START button to turn off the device.

From step 6 of page 8

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)]



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



START button and to "8. Measurement"

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

#### 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**

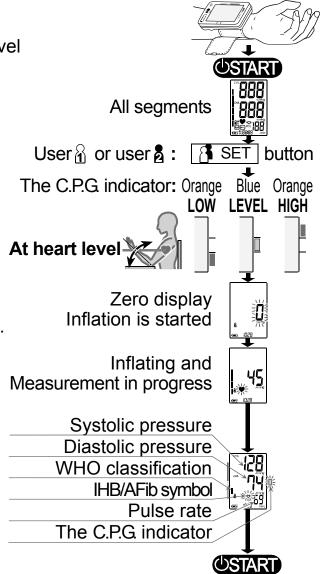
Note: The UB-543, once used, will provide an inflation appropriate to the user.

- 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 and user using the 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.

Note: 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, IHB/AFib 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 one minute between measurements on the same person.



# Recalling the Memory Data

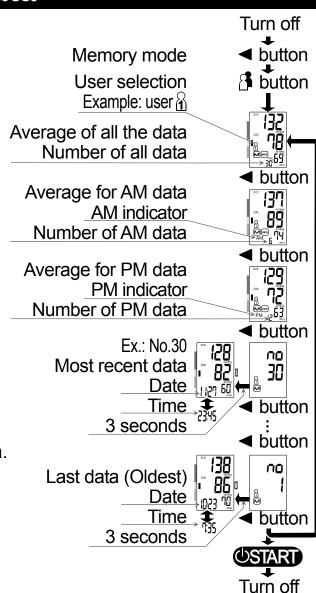
Note: This device stores the last sixty sets of data in memory automatically.

- 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 and user 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,
    - 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  $\rightarrow$  No.29 & data  $\rightarrow \cdots \rightarrow$  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.

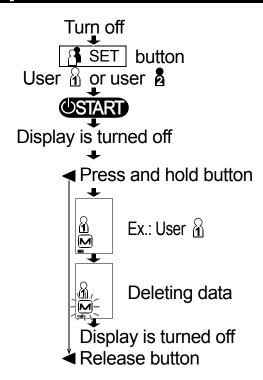
  After one minute of non-operation, the device will turn off automatically.



## **Deleting Data Stored in Memory**

- 1. Select a user from user and user using the START button. Turn off the device using the START button.
- 2. Press and hold the ◀ button until truing off the device automatically. The device displays a user icon and the ⋒ mark, deletes data stored in memory while blinking the ⋒ 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 ((C)) IHB/AFib indicator frequently.

## What Is The AFib?

The heart contracts due to electrical signals occurring in heart and sends blood through the body. Arterial 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.

## **Pressure Bar Indicator**

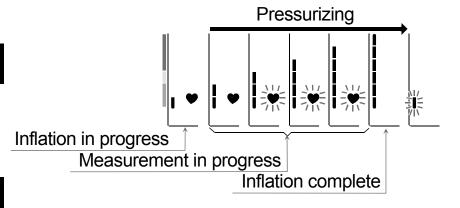
The indicator monitors the progress of pressure during measurement.

## WHO Classification Indicator

Each six segments of the bar indicator correspond to the WHO blood pressure classification described on 18 page.

#### Example

Moderate hypertension	Mild hypertension	High normal
SYS mmHg  PUL Billing    h25   min.	SYS MININERS	SYS  DIA  mmHg  1  PUL  mmHg  1  1  1  1  1  1  1  1  1  1  1  1  1



#### WHO Classification Indicator

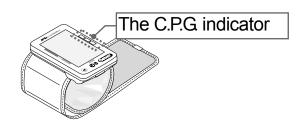
Г	Severe hypertension
	Moderate hypertension
	Mild hypertension
	High normal
	Normal
	Optimal

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

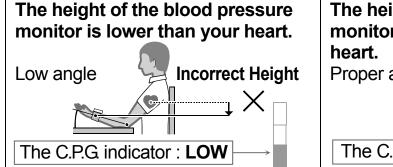
## The C.P.G. Indicator

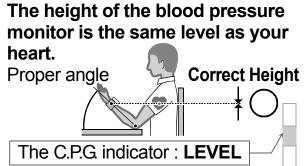
#### The C.P.G. Indicator

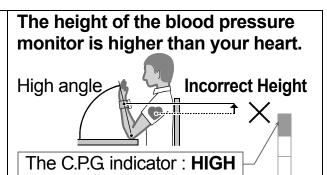
The C.P.G. (**C**orrect **P**osition **G**uidance) indicator is the function to inform a difference between the height (wrist angle) of the blood pressure monitor and your cardiac height in the correct posture (Example: sitting posture, height of table and chair, etc.) during the measurement. The indicator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



#### □ The C.P.G. Indicator







The 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.

Table

Chair

## 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 □ Exercise regularly
□ Reduce salt and fat intake □ Have regular physical checkups

□ Maintain proper weight

#### 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.

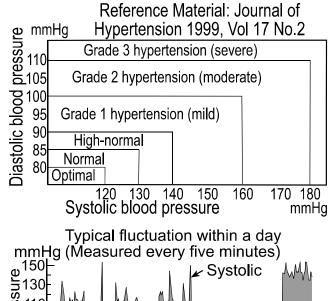
#### **WHO Blood Pressure Classification**

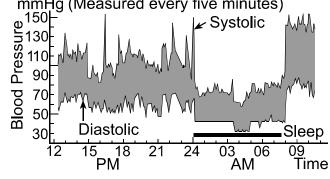
Standards to assess high blood pressure, without regard to age, have been established by the World Health Organization (WHO), as shown in the chart at the right.

#### **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.





## **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.

# Troubleshooting

Problem	Possible Reason	Recommended Action
Nothing appears in the	Batteries are drained.	Replace all batteries with new ones.
1	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	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 cuff is not applied properly.	Apply the cuff correctly.
The device does not	You moved your wrist or body during the measurement.	Make sure you remain very still and quiet during the measurement.
The device does not measure. Readings are too high or too low.	The cuff position is not correct.	Sit comfortably and still. Place your elbow on a table with your palm facing upward and the cuff is at the same level as your heart.
or too low.		If you have a very weak or irregular heartbeat, 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.	Refer to "Why Measure Blood Pressure at Home?".
Otrici		Remove the batteries. Place them back properly and try the 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.

## **Technical Data**

Type	UB-543	
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. 180 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 18 [D] mm	
Weight	Approx. 104 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.



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